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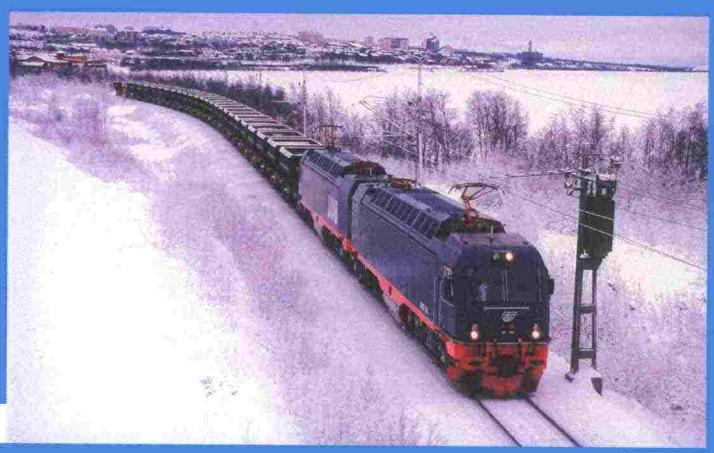
Market Entry Strategies and Confronted Barriers on Liberalized Railway Freight Markets in Sweden and Poland



Milla Laisi

FINNISH RAIL ADMINISTRATION

Publications of the Finnish Rail Administration
A 11/2009

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ISSN 1455-2604
ISBN 978-952-445-301-1

Internet (pdf) (www.rhk.fi)
ISSN 1797-6995
ISBN 978-952-445-302-8

Cover: Proinno Design Oy, Sodankylä
Photo: LKAB archives
Imprint: Kopijyvä Oy, Kuopio

Helsinki 2009

Laisi, Milla: Market Entry Strategies and Confronted Barriers on Liberalized Railway Freight Markets in Sweden and Poland. Finnish Rail Administration, Traffic System Department. Helsinki 2009. Publications of the Finnish Rail Administration A 11/2009. 122 pages and 9 appendices. ISBN 978-952-445-301-1, ISBN 978-952-445-302-8 (pdf), ISSN 1455-2604, ISSN 1797-6995 (pdf)

Keywords: barriers to entry, market deregulation, market entry, Poland, Sweden, railway freight transport, railway undertaking

ABSTRACT

Globalization has increased transport aggregates' demand. Whilst transport volumes increase, ecological values' importance has sharpened: carbon footprint has become a measure known world widely. European Union together with other communities emphasizes friendliness to the environment: same trend has extended to transports. As a potential substitute for road transport is noted railway transport, which decreases the congestions and lowers the emission levels. Railway freight market was liberalized in the European Union 2007, which enabled new operators to enter the markets.

This research had two main objectives. Firstly, it examined the main market entry strategies utilized and the barriers to entry confronted by the railway undertakings who entered the markets after the liberalization. Secondly, the aim was to find ways the Infrastructure Manager could enhance its service towards potential railway freight undertakings. Research is a qualitative case study, utilizing descriptive analytical research method with a normative shade. Empirical data was gathered by interviewing Swedish and Polish railway freight undertakings by using a semi-structured theme-interview. This research provided novel information by using first-hand data; topic has been researched previously by utilizing second-hand data and literature analyses.

Based on this research, rolling stock acquisition, needed investments and bureaucracy generate the main barriers to entry. The research results show that the mostly utilized market entry strategies are start-up and vertical integration. The Infrastructure Manager could enhance the market entry process by organizing courses, paying extra attention on flexibility, internal know-how and educating the staff.

Laisi, Milla: Markkinoilletulostrategiat ja kohdatut markkinoilletulon esteet vapautetuilla rautatietavaramarkkinoilla Ruotsissa ja Puolassa. Ratahallintokeskus, Liikennejärjestelmäosasto. Helsinki 2009. Ratahallintokeskuksen julkaisuja A 11/2009. 122 sivua ja 9 liitettä. ISBN 978-952-445-301-1, ISBN 978-952-445-302-8 (pdf), ISSN 1455-2604, ISSN 1797-6995 (pdf)

Avainsanat: markkinoilletulon esteet, markkinoiden avautuminen, markkinoilletulo, Puola, rautatietavaraliikenne, rautatieyritys, Ruotsi

TIIVISTELMÄ

Globalisaatio on lisännyt kuljetuskokonaisuuksien kysyntää. Volyymien kasvaessa ekologisten arvojen merkitys on kasvanut; hiilijalanjäljestä on tullut kaikkien tuntema mittari. Euroopan Unioni yhdessä muiden yhteisöjen kanssa painottaa ympäristöystävällisyyttä: trendi on jo levinnyt kuljetuksiinkin. Maantiekuljetuksille potentiaalisena vaihtoehtona on nähty rautatieliikenne, joka vähentää ruuhkia sekä on vähäpäästöisempi. Rautatietavaraliikenne avattiin kilpailulle Euroopan Unionissa vuoden 2007 alussa, joka mahdollisti uusien toimijoiden tulon markkinoille.

Tutkimuksella oli kaksi tavoitetta. Tarkoituksena oli tutkia operaattoreiden käyttämiä markkinoilletulon strategioita ja markkinoilletuloon liittyviä esteitä sekä löytää tapoja, jolla valtion virasto voisi edesauttaa uusien operaattoreiden markkinoilletuloa. Tutkimus on kvalitatiivinen tapaustutkimus, ja siinä käytettiin kuvailevaa tutkimustapaa normatiivisella vivahteella. Empiirinen aineisto kerättiin haastattelemalla ruotsalaisia sekä puolalaisia rautatietavarayrityksiä käyttäen puoli-strukturoitua teemahaastattelua. Tutkimus toi markkinoille uutta tietoa käyttämällä ensi käden tietoa; aihetta on aiemmin tutkittu toisen käden tiedon sekä kirjallisuusanalyysien kautta.

Tutkimuksessa tehtyjen havaintojen mukaan merkittävimmät markkinoilletulon esteet ovat kaluston hankinta, tarvittavat investoinnit sekä byrokratia. Käytetyimmät markkinoilletulostrategiat ovat uuden yrityksen perustaminen (vanhan valtiollisen yrityksen pohjalta) sekä vertikaalinen integraatio. Valtion virasto voisi edesauttaa markkinoilletuloa järjestämällä kursseja, lisäämällä joustavuutta, sisäistä tieto-taitoa sekä panostamalla työntekijöiden koulutukseen.

Laisi, Milla: Strategier för marknadsintroduktion och påträffade hinder för marknadsintroduktion inom de avreglerade marknaderna för järnvägsgods i Sverige och Polen. Banförvaltningscentralen, Trafiksystemsavdelningen. Helsingfors 2009. Banförvaltningscentralens publikationer A 11/2009. 122 sidor och 9 bilagor. ISBN 978-952-445-301-1, ISBN 978-952-445-302-8 (pdf), ISSN 1455-2604, ISSN 1797-6995 (pdf)

Nyckelord: hinder för marknadsintroduktion, avreglering av marknaden, marknadsintroduktion, Polen, godstrafik på järnvägen, järnvägsföretag, Sverige

SAMMANDRAG

Globaliseringen har ökat efterfrågan på helhetstransporter. Då volymerna ökar, ökar också innebörden av de ekologiska värderingarna; koldioxidavtrycket har blivit en mätare som alla känner till. Europeiska unionen betonar miljövänlighet tillsammans med andra samfund: trenden har redan spritt sig till transporterna. Järnvägstrafiken har setts som ett potentiellt alternativ till landsvägstransporterna, då den minskar på rusningar och ger upphov till mindre utsläpp. Godstrafiken på järnvägen avreglerades inom EU i början av år 2007 och gjorde det möjligt för nya aktörer att komma in på marknaden.

Undersökningen hade två mål. Avsikten var att undersöka de strategier som aktörerna använde för sin marknadsintroduktion och hinder relaterade till marknadsintroduktionen samt finna sätt varpå det statliga ämbetet kunde befrämja nya aktörers marknadsintroduktion. Undersökningen var en kvalitativ fallstudie som använde sig av ett beskrivande forskningssätt med en normativ nyans. Det empiriska materialet insamlades genom att intervjua svenska och polska järnvägsgodsföretag genom en halvstrukturerad temaintervju. Undersökningen gav marknaden ny information genom att använda sig av förstahandsinformation; ämnet har tidigare undersökts genom andrahandsinformation och litteraturanalyser.

Baserat på de observationer som gjordes i undersökningen var de största hindren för en marknadsintroduktion anskaffning av materielen, nödvändiga investeringar och byråkratin. De mest frekventa strategierna för marknadsintroduktion var att grunda ett nytt företag (baserat på ett gammalt statligt företag) samt vertikal integration. Det statliga ämbetet kunde befrämja marknadsintroduktionen genom att anordna kurser, öka flexibiliteten och den interna expertisen samt genom att satsa på utbildning av de anställda.

FOREWORD

This work was done for Lappeenranta University of Technology's and St. Petersburg State University's MITIM-program (Master in International Technology and Innovation Management) and it was ordered by the Finnish Rail Administration. Research was done by undergraduate Milla Laisi. At the same time work is writer's Master's Thesis for the double master's degree between Finland and Russia.

Work was examined by professors Olli-Pekka Hilmola and Olli Kuivalainen from Lappeenranta University of Technology and Professor Yury E. Blagov from Graduate School of Management. The mentors from the Finnish Rail Administration were Director Miika Mäkitalo and Senior officer Kaisa-Elina Porras.

Helsinki, September 2009

Finnish Rail Administration
Traffic System Department

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ABBREVIATIONS

EIU	The Economist Intelligence Unit
ERTMS	European Rail Traffic Management System
FCL	Full container load
GDP	Gross-domestic product
LCL	Less than container load
OECD	Organization for Economic Co-operation and Development
PKP PLK	PKP Polskie Linie Kolejowe (PKP Polish Railway Lines)
RNE	RailNetEurope
TEU	Twenty-foot container load
	(Respectively, 2 TEU = Forty foot container load)
Tkm	tonne-kilometre
WTO	World Trade Organization

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1 INTRODUCTION

This study examines the phases of entering a railway freight market after a deregulation process. The main focus is on market entry strategies and barriers to entry. The entry process is examined in two countries, Sweden and Poland, countries that deregulated the railway freight markets before legislative demands of the European Union. In addition, study assembles notions how the Infrastructure Manager could enhance its service towards new entrants of railway freight market. The research is The Finnish Rail Administration's project, done at Lappeenranta University of Technology's Kouvola Unit.

1.1 Background of the research and research gap

The field of transportation has changed dramatically during the centuries. Globalization increases demand towards more specialized transport aggregate. Countries' equity ratio can not guarantee all products needed, which sets pressure on transportation; it has a key role in economic activity. As Quinet and Vickerman (2004) states, transport is a sector of economic activity, which actuates to national output. Increased inputs in process of production enhance demand for transportation. According to World Trade Organization's (WTO) survey (WTO, 2008), exports of world transportation services amounted $ 750 billion in 2007, stating 19 per cent increase compared to nine per cent increase in 2006. In 2007 European Union member states' transport accounted for around six per cent of the GDP (Eurostat Transport, 2009). Freight transport by inland modes (road, railway, inland waterways and oil pipelines) increased in EU 27 countries by five per cent in 2006 compared with 2005, attaining 2 595 billion tkm[1] (Eurostat, 2009).

The main transportation modes are air, railway, road and sea. Air service started in Europe during 1920s; cargo traffic developed slowly but it has increased the market share annually. Eurostat statistics show 14.5 per cent increase between years 2004 and 2007. Railway traffic leads back to late 1700s and early 1800s, when steam engines were developed into working entities. During the early days railway was used to transport bulk cargo[2], for example in UK the wagonway was constructed in order to transport coal from mines to canal, where it was transferred to vessels and transported onwards (Schivelbusch, 1996, 7-12). Railway transport has lost its market share during the decades. In 1950s railway transportations market share was 60 per cent (Vassallo & Fagan, 2005). According to Eurostat (2009), in 2008 the market share in Europe was 10 per cent.

The considerable increase in transportation has unfolded in road transport. In 2007 road transports' stake was 76.9 per cent, which is three percentage units larger than in 2000 (Eurostat, 2009). Although waterway is among the main modes in international transportation, in Europe it represents a minor role with six per cent market share (Eurostat, 2009). Due to its nature the strength is in moving large quantities with relatively low price.

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[1] Tkm = tonne-kilometre; unit of measure representing movement of one tonne of freight over one kilometre

[2] Bulk cargo = cargo which is transported unpackaged in large quantities

Increased need for transport creates many complications in the society. By courtesy of road transports' increasing market share, many nations have elaborated actions in order to distribute transport load to various modes. Whilst transport volumes increase, ecological values' importance has increased: carbon footprint has become a measure known world widely. European Union together with other communities emphasizes environmentally friendliness: same trend has extended to transports. As a potential choice for road transport is seen railway transport, which decreases the congestions and enables lower level of emissions. One of the actions was introduced in 1991, when European Directive 91/440 was launched. Later on many White Papers, directives and legislations prepared the way for European railway freight traffics' deregulation, which came into force in 2007. (European Union, 2009)

For decades railway transport has been seen as a prospective rival for road transport. Railway offers cost-effective transport without obstructing the traffic. In long-distance corridors railway can displace other modes: for example, by using Trans-Siberian[3] Railway the distance from Japan to Helsinki would decrease by an impressive 58 per cent! (European Union, 2009; Hilletofth et al., 2007) Although The RailNetEurope (RNE) tries to harmonize the conditions and procedures in the field of international railway freight traffic, market faces several problems. Countries have own electricity systems, which constrain the possibility to transport goods through various countries, although those would have same gauge. Every country requires own documents, certificates, procedures and safety systems, which must be fulfilled before operations can be enlarged outside internal borders. Liberalization of railway freight transport has enabled new entrants to enter the previously monopolistic markets. Competition is seen to decrease price level, increase the service culture and offer new routes. (RailNetEurope, 2009)

Few European countries have opened the railway freight markets before legislative demands of the European Union. Among the first ones were United Kingdom and Sweden. The process in UK was a short-term failure, but Sweden set an example market can be deregulated in a profitable manner. Sweden opened the markets in 1990s and today the railway freight market has dozens of railway undertakings. Poland deregulated the markets in 2000, four years before joining the European Union. As in Sweden, Polish market has today several railway undertakings; the market shares differ from a massive market leader to minor railway undertakings with few per cents' market share. Rallying point in both countries is a fact the earlier monopoly company still runs the markets: in Sweden the former monopolistic undertaking has more than 75 per cent market share!

Finland opened the markets in 2007, when freight traffic monopoly was terminated due to European Union's legislation. However, VR Cargo, the old Finnish State Railways (Valtionrautatiet, VR) is still the only railway undertaking. So far two companies have announced interest towards entering the Finnish markets. According to Helsingin Sanomat (2007) and Iisalmen Sanomat (2009), TR Group is planning on entering the freight markets in 2010. Newest entrant is Proxion, which announced in March 2009 the interest to enter the markets in 2011 (Helsingin Sanomat, 2009). However, the situation

[3] The world's longest railway, 9 298 km.; from Moscow to Vladivostok

might change dramatically once the Russian border is deregulated. At the moment the eastern border is sheltered from competition, signifying only VR Cargo and the Russian Railways (Российские железные дороги, RZD) can practice the transit traffic. The locomotives are changed at the border, therefore VR is the only railway undertaking which can actually operate railway freight traffic in Finland. Additionally, not all Russian wagons receive the permission to enter the Finnish rail network. The agreement is to be reformed in the next few years. (Iikkanen, 2007) If the transit traffic is deregulated, Finnish market might face a situation several Russian railway undertakings enter the market. The situation is interesting for the Finnish Rail Administration: in order to be ready for future challenges, it is vital to understand how the other markets encountered the situation after the liberalization.

Railway freight markets' deregulation has been studied in numerous studies (see for example Brewer, 1996; De Jorge & Suarez 2003; Hilmola et al., 2007; Jensen & Stelling, 2007; Ludvigsen & Osland, 2009; Mäkitalo, 2007; Profillidis, 2004). Several studies have scrutinized the railway freight liberalization pioneers, for example UK (see for example Brewer, 1996; Woodburn, 2003; Woodburn, 2007) and US (Boyer, 1987; Jahanshahi, 1998; OECD, 1997). Numerous studies have concentrated on comparing western countries, like UK, Sweden, Germany and US (see e.g. Hilmola et al., 2007; Ludvigsen & Osland, 2009; Profillidis, 2004) or eastern countries (Szekely, 2009). However, a clear gap exists in comparing western and eastern countries. Some studies have opened the path; Szekely & Hilmola (2007) analyzed Swiss, Japanese, Polish and Hungarian railways. Existing literature mainly builds on second-hand statistics and literature analyses, concentrated on researching the influences on the country level. Therefore, there is a lack of studies done by gathering first-hand data via interviewing experts, who have experienced the deregulation and have entered the railway freight market after liberalization.

1.2 Objectives of the research and research problem

The objective of the study is to examine the special characteristics of entering the markets after the deregulation. This study familiarizes with the theoretical knowledge of the main market entry strategies and market entry barriers and brings it to the empirical level by investigating the expert's opinions operating in the deregulated markets. The purpose is to find out how railway undertakings determine to enter the markets and clarify the used strategies. The intention is also to define the main barriers to entry, difficulties and black spots confronted by the railway undertakings. Railway freight transport was deregulated recently in Finland, opening up a current topic for research.

Through the gathered information, research attempts to deliver piece of advice how the Infrastructure Managers could improve their services towards potential new entrants. The aim is to gather genuine information how the railway liberalization affected on the markets at actor level by interviewing railway undertakings who tapped the situation. There is a research gap in the literature of combining Swedish and Polish markets. Secondly, earlier studies have gathered the information by questionnaires in narrow form. This study will try to tackle some of that gap. Additionally, this research is among the first ones which interviews the experts who have experienced the process.

By developing the research's main objective, research questions are developed. Five sub-questions follow the main research questions, with an objective to support the research purposes.

The main research questions of the study are:

Do market entry barriers exist in railway freight market? What are the main barriers confronted by the railway undertakings?

The sub-questions are:

1. Which entry strategies are mainly used by the new railway undertakings?
2. How the Infrastructure Manager could enhance its service towards new entrants of railway freight market?
3. What were the main effects created by the liberalization at actor level?
4. Does the infrastructure's condition boost competition?
5. Does intramodal and intermodal competition prevent new railway undertakings to enter the markets?

1.3 Literature review

The history of modern economics leads back to 1700s, when Adam Smith published the Wealth of Nations, which is often regarded as basis for classical political economics (Bowles & Gintis, 1993; Mäkitalo, 2007). One of the most recognized thoughts were "the invisible hand", which according to Smith & McCulloch (1863) guides the economy and improves the welfare. Today neoclassical economics recognizes several market structures, perfect competition and monopoly presenting the extreme ends. In between lies several market forms, free competition having a major role. (Baye, 2005; Begg et al., 1994) In 1970s, when nations noted public sector was too involved in economics due to nationalization, countries' started deregulation process. First market to be deregulated was US airlines in 1978; railway followed in 1980. (Begg et al., 1994; Jahanshahi, 1998; OECD, 1997) Same trend extended to Europe few years later, when several European countries, including UK, Germany and Sweden, decided to deregulate the railway freight market (Alexandersson & Hulten, 2005; Jahanshahi, 1998).

Railway freight markets' deregulation has been a hot topic during the last decades. Several studies (see for example Brewer, 1996; De Jorge & Suarez 2003; Hilmola et al., 2007; Jensen & Stelling, 2007; Ludvigsen & Osland, 2009; Mäkitalo, 2007; Profillidis, 2004) are conducted, concentrating on either to expound on the development, comparing progress in countries or evaluate the future prospects. Understandably, the main emphasis has been on liberalization pioneers, who deregulated the markets already decades ago (see for example Boyer, 1987; Brewer, 1996; Jahanshahi, 1998; Woodburn, 2003; Woodburn, 2007). However, the European Union noticed in 1990s in order to guarantee the free movement of goods, it should extend the mindset to transport activities. Directive 91/440, White paper published in 1992 and White Paper in 1996 guaranteed the process was progressing. As an outcome, European Parliament wrapped up a decision in 2004 to deregulate the European Union railway freight market latest on 1st January 2007. (European Union, 2009; the White Paper, 1992; the White Paper,

1996) Recently, researchers have focused on studying countries which deregulated the railway freight market in the last stage (see for example Hilmola & Szekely, 2007; Ludvigsen & Osland, 2009; Profillidis, 2004; Szekely, 2009).

Markets face various barriers to entry, varying depending on the market's structure, industry and amount of players. Therefore, it is essential to understand the market entry barriers, which may complicate the entry process. The subject's theoretical dissection started in 1950s, when Bain published "Barriers to New Competition", which is seen as a pioneer piece of the theory (Baron, 1973; McAfee et al., 2004; Pehrsson, 2009; Schmalensee, 1981). Since several authors have contributed to barriers to entry theory. Among the latest studies are McAfee et al. (2004), whom conceived the division between economic and antitrust barriers. Even more recent study was conducted by Pehrsson (2009), who building on insights of Hambrick (1983) and Peteraf & Reed (2007) presented a model combining the barriers to entry and new entrants' market entry strategies. According to his study (Pehrsson, 2009), a new entrant faces extensive exogenous and endogenous barriers and therefore chooses a broader market scope than an earlier entrant. Pehrsson (2009) also notes incumbent strategy affects on market entry barriers, and therefore impedes the market entry of potential newcomers.

Market entry process consists of several steps. Before actually entering the market, Koch (2001) suggested newcomers should become acquainted with internal and external factors affecting on the entry mode's selection, subjects such as environment's characteristics, competencies, capabilities and skills required / available and own experiences. According to various studies (Macht & Robinson, 2009; Robertson et al., 2003; Sørheim, 2005), the main problems start-ups face when entering the markets are of financial nature. In addition to financing by banks, start-ups can pursue help from venture capitalists or business angels (Deakins, 1996; Wiltbank, 2005). In the case of mature firms, vertical integration, strategic alliances and subsidiaries are the mostly used forms (Blomstermo et al., 2006; Kotler, 1988; Kotler, 2000; Lee et al., 2000).

Several methods can be utilized when analyzing industry's competitiveness. Porter (1980) introduced five forces model, which is since employed by several researchers (see e.g. Casaca & Marlow, 2007; Keegan, 1984; Kotler & Scheff, 1997; Mäkitalo, 2007). In compliance with Porter (1980), the collective strength of five forces determines the primary profit potential in the industry. Alternative way of measuring the industry is to utilize the strategic grouping, which was created by Hunt in 1972 but popularized by Porter in 1980 (Feka et al., 1997; Hatten & Hatten, 1987). By grouping companies into strategic groups their structure can be examined and analyzed and the attractiveness can be checked (Feka et al., 1997; Porter, 1980, 129 – 130). In addition, Porter (1980) divided firms into two categories, industry leaders and followers, depending on their status at the market. This naturally distinguishes strategic groups (McGee & Thomas, 1986; Porter, 1979, 220 – 221). Besides, mobility barriers, group specific entry barriers, provide advantages to different groups (Caves & Porter, 1977). Worth mentioning is a study conducted by Smith & Grimm (1987), which studied and grouped the US railway market in 1984. Researchers classified the answers into five strategies, and in addition to focused or unfocused types. Smith's and Grimm's (1987) result was surprising: 57 per cent of studied companies (15 firms out of 27) changed their strategies. In further studies few years later, Smith and Grimm (1991) revealed that

managers' age and years of industry service had a straight correlation with strategic change.

1.4 Theoretical framework

This research combines various areas of business. The main basis is built on economics: work originates from classical political economics and Adam Smith, continues to theory of competition in the form of barriers to entry and moves on to market entry strategies. However, due to the nature of the thesis, transportation theory's share cannot be ignored. Theoretical framework is illustrated in figure 1.

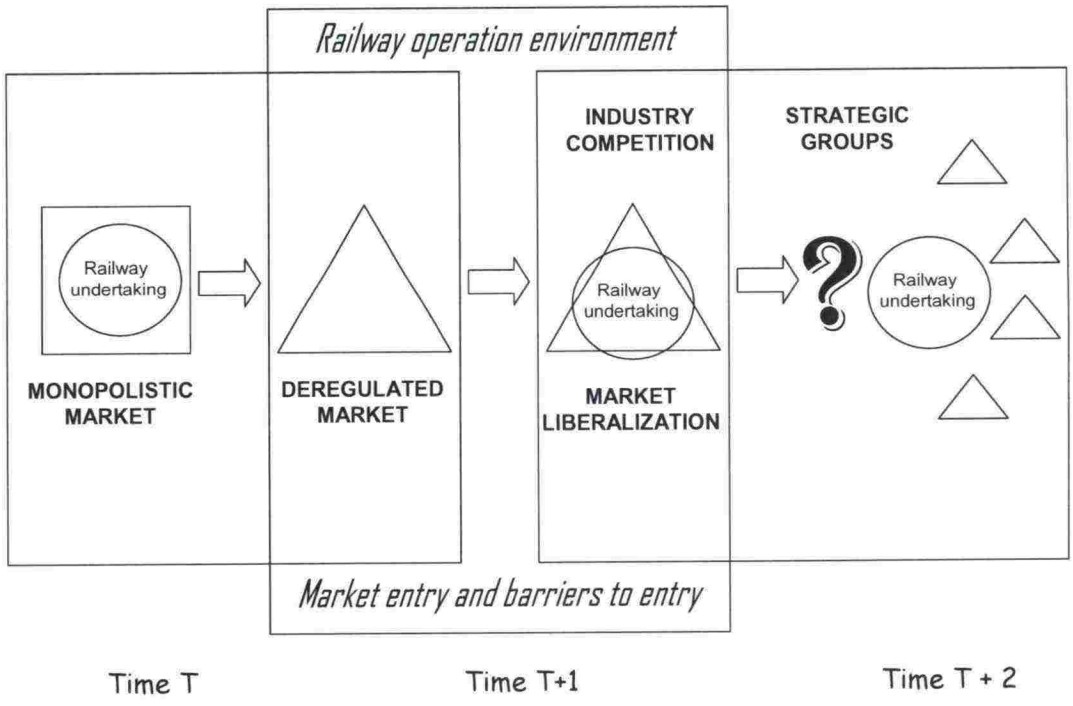

Figure 1 Theoretical framework

Figure 1 describes the theoretical framework in two ways: it presents the market entry process in chronological order, starting from monopolistic market situation. When markets are deregulated, new undertakings can enter the liberalized markets. This has happened in several countries, including Poland and Sweden, research's case countries. Although the Finnish railway freight market was deregulated in 2007, new entrants have not entered the markets. The question mark in Figure 1 presents the prevailing situation in Finland. The main question behind it is "how new entrants' could be persuaded to enter the Finnish markets?" Railway operation environment stands for transportation theory; market entry and barriers to entry enlarge on the theory of competition. Strategic groups and industry competition presents the types to analyze the market. Time frame in the bottom explicates the change occurred.

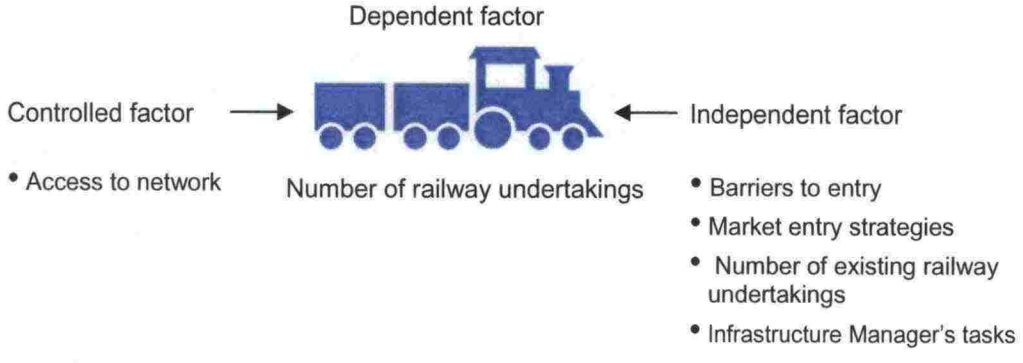

Figure 2 Independent, dependent and controlled factors

Research dependent, independent and controlled factors are presented in figure 2. As figure illustrates, this research's dependent factor, the observed variable is number of railway undertakings. As stated in one of the sub-research question, Infrastructure Manager wants to know how it could create preconditions that would enable to increase the number of railway undertakings in the Finnish markets. Therefore, Infrastructure Manager's tasks are one of the independent factors, among barriers to entry, market entry strategies and number of existing operators. Controlled factor, the factors which are kept constant is for example access to network.

1.5 Delimitations

Although railway market deregulation is rather young concept, it has been a theme of numerous research works. Research is limited to focus only on railway freight market, passenger market is excluded from this study. Although, study concentrates only on two countries, in order to clarify the concept of railway deregulation, British and American railway freight markets are discussed briefly. Due to amplitude of possible literature and theories, only the main constructs are included. Therefore, some interesting theories, including moral ethics from philosophy and cultural theory are excluded.

Regarding time, this study's empirical part was limited into two countries, Sweden and Poland. There are several reasons why exactly these countries were chosen. First, Swedish market structure is rather similar to Finland, excluding iron ore transports in Northern Sweden. Poland was seen as an interesting option due to its activity level: a lot has happened since railway market was liberalized, for example railway undertakings have acquired smaller actors. Secondly, Liberalization Index, which presents the relative market opening in EU countries including Norway and Switzerland, concluded Sweden belongs to "advanced" and Poland to "on-schedule" groups. Research attempts to understand if there is something else involved than the fact Sweden was among the first countries in Europe to deregulate the railway freight market. Thirdly, Sweden is counted in Western European countries, whereas Poland belongs to Eastern European countries. Research attempts to compare the results and understand if differences exist.

Inside Polish or Swedish market geographical location was not seen as a limitation, which enriches the empirical findings. All Swedish railway undertakings were contacted, excluding one small-sized railway undertaking. Because Polish market has over 90 railway undertakings that have a license to practise railway freight transport, an extensive sample was chosen. However, the railway undertakings who agreed to

participate might have different opinion than the excluded ones. Only one person was interviewed per railway undertaking, which can be seen as delimitation. Additionally, all interviewees were in managerial position and males, which can be regarded as delimitation.

Language barrier created delimitations in Poland. Although interpreter was present and all information was translated, due to technicalities some matters might have been misunderstood.

Lastly, this research concentrates on industry perspective; therefore companies' internal knowledge is not sifted. Additionally, resource based view (RBV) is not utilized. Research's main intention is to study the railway freight market as an entity, whereas resource-based view tackles the company's key resources. Therefore resource-based view does not examine the correct factors.

1.6 Definitions of the key concepts

Barriers to entry

According to Porter (1980), market entry barriers are obstacles preventing new entrants from entering markets. In railway freight transport it means the problems and challenges, which prevent new railway undertakings of entering the market. Market barriers can be for example governmental (laws) or money and product / service based (capital requirements, product / service differentiation).

Market deregulation

Market deregulation refers in this research to opening the market for competition, decontrol the monopoly. This enables new railway undertakings to enter the markets. This research concentrates on Polish and Swedish markets. Synonyms for the market deregulation include opening up the market, market liberalization and opening the rail network.

Market entry

Market entry refers to processes and operations a new entrant must fulfil before it can initiate railway transport (Mäkitalo 2007). Process consists of various steps, including becoming acquainted with entry modes, deciding the entry strategy and familiarizing with market entry barriers.

Railway freight transport

Railway freight transport signifies transporting goods on tracks. Rail transport can be divided into two sub-groups, freight and passenger transports. The other railway traffic alternatives, tramway and metro, are designed for passenger transportation. This study concentrates only on freight transport.

Railway undertaking

Railway undertaking refers to a private-owned company who possess rolling stock and practice railway transport as its main business.

1.7 Research methodology

Hirsjärvi et al. (2004) state qualitative research's main intention is to understand the research subject. The main difference between qualitative and quantitative research methods is their nature: qualitative concentrates on words whereas quantitative research main focus is on numerical data (Eisenhardt, 1989). The methods can be utilized also in surprising connections: Sutton & Callahan (1987) relied solely on qualitative data while studying bankruptcy in Silicon Valley, and Eisenhardt & Bourgeois (1988) gathered quantitative data from earlier studies, which were qualitative by nature. Yin (1981) theorized although case study is often integrated with qualitative research, as well it can involve only quantitative data, or both. Additionally, case study approach can be utilized in surprising connections. Lukka & Kasanen (1995) noted case study methodology has been increasingly used in management accounting studies. Although, interviews can disclose both qualitative and quantitative data (Eisenhardt, 1989), this research is qualitative by nature. Häkkinen & Hilmola (2005) stated case study research has become a widely used research strategy in logistics. They concluded logistics case studies mainly concentrate on descriptive research objectives (Häkkinen & Hilmola, 2005). Because this study is logistical by nature and it attempts to give proposals for improvement as well as to describe the current situation, research is mainly descriptive analytical but it embodies also normative methods (Routio, 2007).

Kathleen M. Eisenhardt (1989) argues case study method is especially feasible when studying new topic areas. In addition, because case study approach does not rely only on previous literature or prior empirical evidence, theory building from case study research is especially appropriate (Eisenhardt, 1989). This explains why case study method was chosen as a research method in this particular research. Due to lack of earlier first-hand empirical data, by interviewing experts from several railway undertakings author was able to gather genuine information at actor level. In compliance with Eisenhardt (1989), close interaction with the topic produces theory which closely reflects reality. Although, case study is often imagined to concentrate on only one case company, according to Eisenhardt (1989) this approach might create problems; amount between four and ten cases usually works well. If sampling has less than four cases, it is difficult to generate a theory and empirical working knowledge is likely to be unconvincing. However, with more than ten cases, the amount and complexity of data might be hard to handle. (Eisenhardt, 1989) This study consists of 16 cases, including two Infrastructure Managers and one terminal operator which did not belong to research's main target group. Therefore, the actual case amount is 13. Because the quantity of data is extensive, this research needs to pay special attention on delimitation. However, when contemplating the gathered data on country basis, the amount of cases is numbered down to six (Sweden) and seven (Poland). As mentioned earlier, these figures reckon among the adequate number stated by Eisenhardt (1989).

Häkkinen & Hilmola (2005), building insights of Vafidis (2002), stated commonly is assumed case studies use an inductive approach. Brown & Eisenhardt (1997) and Hilmola (2003) ratified the contention and noted inductive approach is used more frequently in case studies. In deductive approach research work starts from current theory to data; logical thinking is used as generic tool in the creation process of a proper construction (Hilmola, 2003). Inductive approach is mainly used to generate new findings for current theories; however, researchers often cannot state which approach they are using (Brown & Eisenhardt, 1997; Hilmola, 2003). According to Hilmola (2003), generally case study researches are not purely inductive or deductive by nature. This research uses inductive approach: research's intention is to generate new findings and confirm the existing ones.

1.8 Structure of the research

In chapter 1 was reviewed the topic of the study. It gave a glance to the background, stated the objectives and presented a literature review. Additionally first chapter defined the key concepts and illustrated the delimitations and research methodology. The research questions were introduced; ensuing chapter examines the outcomes for the research questions. In chapter 2 literature review concerning railway freight market was introduced. The chapter approached the European Union legislation and clarified the contents of directives and White Papers. The second chapter also demonstrated the deregulation process in Sweden, Poland and Finland.

In Chapter 3 was concentrated on competition theory: barriers to entry and market entry strategies. It described the results of earlier studies and replenished the outcome with Porter's five forces and illustrated the concept of strategic groups. Following chapter 4 presented the concept of transport infrastructure and introduced the main modes of transport. It described the modal split of freight transport and briefly introduced the situation in case countries.

In chapter 5 was reviewed the research environment. Approach for research was explicated, followed by exposition of a theme interview. Chapter concluded by presenting the data collection methods. Empirical data was examined in chapter 6. Case countries Sweden and Poland were studied separately, assembling the main data. The market entry strategies utilized were described and barriers to entry were untangled. Additionally, collaboration level with the local Infrastructure Manager was studied. In chapter 7 was reviewed the comparison between Polish and Swedish results. The main outcomes were discussed and major discrepancies explained. Chapter 8 was engrossed in outcomes and main results. Theory and empirical data were concluded and discussed. Ultimate chapter finalized the empirical outcomes and theory, and proposed suggestions for further research.

Figure 3 illustrates the structure of the thesis, describes why matters are interfaced to the research and states the goals. In addition, the figure is split into three subgroups, literature study, empirical research and summary. This intention is to clarify where information stands.

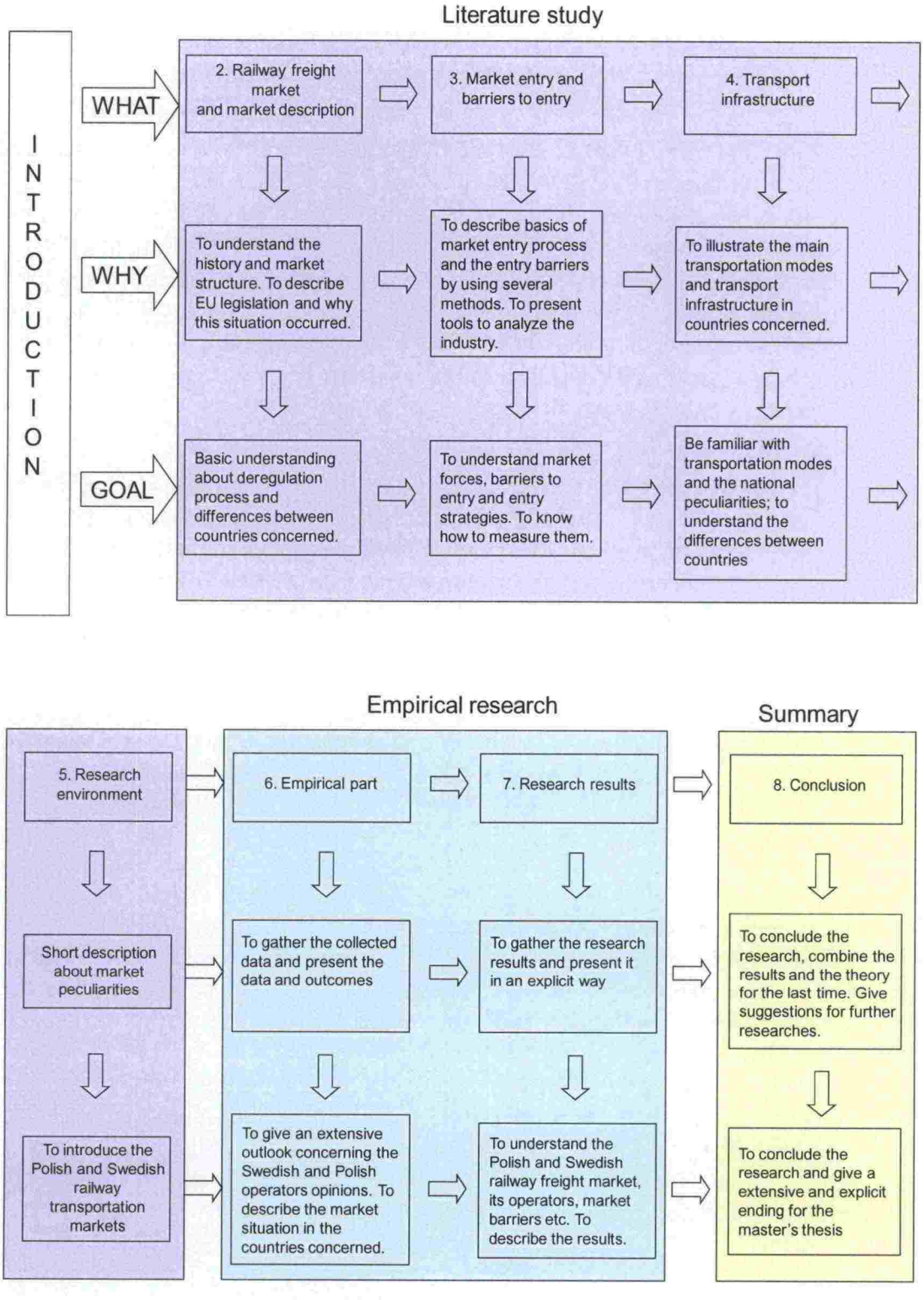

Figure 3 Structure of the thesis

2 RAILWAY FREIGHT MARKET AND MARKET DESCRIPTION

Globalization has had a considerable impact on the traditional transport structure. Countries' equity ratio cannot guarantee all products needed; locations of raw materials and consumables are not identical, which produces need for transportation. Whilst transport volumes increase, ecological values' importance has increased: carbon footprint has become a consequential measure known world widely. Additionally more attention needs to be focused on choosing the most cost-effective and customer-oriented mode of transport. Many researchers have noted transport market liberalization improves these factors (see Hilmola et al., 2007; Mäkitalo, 2007; European Union 2009). Transport market liberalization, including road and railway transport, has been considered as a measure to increase efficiency (Profillidis 2004).

Railway market liberalization has been a hot topic for decades. After World War II the railway transport share decreased worldwide, incurring bankruptcies. For example, in United States ten major railroad bankruptcies happened in 1970s (Jahanshahi, 1998). Same trend was seen worldwide, when other transport modes displaced railway transports. Nations realized something had to be done; railway deregulation was noticed as a solution. Railway freight liberalization was identified as a tool to promote competition not only among the industry, but also among different transport modes. (Profillidis, 2004) Liberalization meant the freedom to define freight rates and possibility to organize production and costs in line with market conditions (Bereskin, 1996).

2.1 History

Railways have been the first regulated markets in many countries. United States (US) was among the first ones by regulating the railways in 1887 with the Interstate Commerce Act. Same trend continued and US was the first country to deregulate the railway market in 1980. The Staggers Rail Act opened the markets and introduced the possibility for railway undertakings to negotiate the railway contracts without interference. (Jahanshahi, 1998) OECD's research report (1997) stated railway deregulation's major benefit was the improved service level, providing more reliable and rapid services. The benefits were estimated to be worth of 5 million US dollars in 1990. At the same time employee productivity doubled during 1983 and 1992, enabling railway transport to compete against other modes of transport, namely road, sea and air. (OECD, 1997)

Market liberalization was successful in North America because the transportation market was more competitive than traditionally was believed. The main commodities transported included bulk products and containers moving over long distances. Railway offered cost-effective way of transportation also for heavy industries like mines, electricity generating stations, refineries and manufacturing plants, which were not located by the waterway and therefore were not able to be served via sea transport. (Gomez-Ibanez, 2004)

The first European countries to deregulate the railway markets were United Kingdom (UK), Germany and Sweden (Jahanshahi, 1998). In compliance with Alexandersson and Hulten (2005), the liberalization process in the European Union nations have been driven by various types of economic, institutional and legal concerns. Alexandersson and Hulten (2005; 2008) conclude in UK strive was towards market liberal agenda, whereas in Sweden the main force was to find new possibilities to finance railway investments. European member states utilized four broad types of deregulation. The United Kingdom utilized rationalist approach, while Sweden relied on incremental way. Alexandersson and Hulten (2005) describe the German and Dutch approach as "wait and see" and French as a reluctant applying approach. (Alexandersson & Hulten, 2005; Alexandersson & Hulten, 2008)

In UK the privatization process started in early 1980s. In the freight railway sector a partial deregulation was introduced in 1989 by numerous privately owned terminals, wagons and locomotives. The final stage was enabled in 1992 when the British Government published a White Paper called *"New Opportunities for the Railways: The Privatisation of the British Rail"*. The markets were opened for free competition in 1994. (Gibb et al., 1996) Entire deregulation process was carried out during 1994–1997, whereby the former integrated monopoly market was separated into total privatization. The process divided market into two: Railtrack became responsible for the infrastructure and railway undertakings got the responsibility of the railway services. (Alexandersson & Hulten, 2005) However, UK liberalization process is said to be a failure. The railway infrastructure company Railtrack failed to operate the market efficiently. Because of lack of investments rail network was not in decent condition, passenger trains accuracy decreased significantly from 90 per cent down to 60 per cent and train accidents increased. After five years it was badly in debt and finally bankrupted in 2001. (Hilmola et al., 2007; Szekely, 2009) In 2002 UK accepted investment plans worth of £ 34 billion to increase the safety level and reorganize the infrastructure. Today the rail network is in better condition than ever. (Hilmola et al., 2007)

Germany started the liberalization process in 1993 with the Railway Restructuring Act (Profillidis, 2004). Sweden's process started in 1988 when Transportation Policy Act was introduced. The first new entrant started regional traffic in 1990 and first entrepreneurial feeder lines, so called short lines were established in 1991 (Jensen & Stelling, 2007).

Profillidis (2004) studied railway freight market's liberalization in Germany, UK, US and the expected impact within European Union. The main finding was that in two countries out of three, the railway transport efficiency increased significantly when markets were liberalized. Table 1 presents the findings.

Table 1 *Impact of liberalization of railway freight market in Germany, UK, US and expected impact within EU (Profillidis, 2004, p. 272)*

Parameter	Germany	UK	US	EU
Improvement of railway transport efficiency	x	?	x	x
An increase of railway transport market share	-	x	-	x
Tendency towards oligopolistic situations	-	-	x	x
A decrease of services in rural areas	x	-	-	?
Adverse impact on railway transport safety	-	-	-	-

Profillidis (2004) introduces five items: improvement of railway transport efficiency, an increase of railway transport market share, tendency towards oligopolistic situations, a decrease of services in rural areas and adverse impact on railway transport safety. The research revealed the significant differences between countries. The only parameter, which was seen in two countries, was improvement of railway transport efficiency: Germany among US noticed increase in this sector. According to Profillidis (2004), in Germany the liberalization led to increase in investments, which contributed to 94 per cent increase in productivity from 1993 to 1998. The other parameters where found only from one country. Germany was the only country where market liberalization decreased the services in rural areas, while US was the only nation where tendency towards oligopolistic situations were noticed. UK noticed an increase of railway transports' market share. Profillidis (2004) states between 1995/1996 and 1997/1998, carried tonne-kilometres increased 27 per cent, from 13.3 to 16.9 billion. According to Profillidis (2004) and Boyer (1987), in US the railway transport market share dropped. Boyer (1987) estimated the reason was increased railway rate level.

In compliance with Profillidis (2004), railway market liberalization has a positive impact in European Union. According to his research the market efficiency, the railway transport market share and tendency towards oligopolistic situations would increase. Decrease in services in rural areas is the only vague parameter. However, he professed it is extremely hard to predict due to countries discrepancy. He also noted the technical problems are one major complication. (Profillidis 2004)

2.2 European Union

The history behind European Union leads back to year 1949, when few West European nations created the council of Europe. The European Economic Community (EEC) or "common market", which enabled goods, people and services to move freely among member states, was introduced in 1957. The final reinforcement happened in 1993, when the Single Market was completed with so called "four freedoms" (History of EU, 2008): movement of goods, services, people and money. (European Union, 2009; History of EU, 2008)

Free movement of goods increased the need of transportation in European Union. The Commission perceived some actions were needed. One of the earliest initiatives was the European Directive 91/440, which stated railway infrastructure and operations need to be separated. This directive has commonly functioned as the first step towards reformed

railway market in the European Union. (Alexandersson & Hulten, 2005; European Union, 2009)

The second step towards integrated transport market was the White Paper[4] published in 1992. The Paper dealt mostly about opening up the transport markets. Same message was seen in the second White Paper called "A Strategy for Revitalising the Community's Railways", which was published in 1996. This paper stated in the section I *"A New Kind of Railway is Needed"* (the White Paper, 1996). In addition to opening up the transport markets, Paper stated the European Union believes railway transport should play a bigger role in the future. According to the White Paper, a social impact of transport can be reduced, if great amount of traffic is transferred from road to rail. Already in 1996 was clear that the increase in using the railway would solve many problems (for example pollution and congestions). The White Paper states (1996) *"It is paradoxical that, when many of the problems that rail could help to solve are increasing, its share of transport markets continues to decline"*. The paper introduced the term "Rail Freight Freeway", which states the existence of national railway undertakings is hampering the railway's development. Therefore, this paper can be seen as the first stride against the railway market deregulation. (The White Paper, 1996; Mäkitalo, 2007)

Commission submitted the White Paper called "*European Transport Policy for 2010: Time to Decide"* in 2001. It continued the idea of developing a transport system capable of changing the balance between modes of transport. The intention was to revitalize the railways, promote sea and inland waterway transportations and control the growth of air transport. One of the White Paper's cornerstones was the completion of an integrated transport market for railway freight transportation. In addition, Commission proposed 60 or so measures to develop these areas. The White Paper also declaimed the EU must develop socially, economically and environmentally sustainable transport system. (European Union, 2009; the Summary of White Paper, 2001; Mäkitalo, 2007)

The White Paper (2001) stated during the last decades the "stock economy" has moved to a "flow economy". This means various industries trying to reduce production costs are relocating the factories, although the distance between the production place and the end-consumer might be thousands of miles. Free movement of goods enables to confirm "just-in-time" and "revolving stock" production system. European Union member states fear unless new measures are taken by 2010, heavy goods' road transport will increase by nearly 50 per cent from the 1990s level. The White Paper exposed The Commission's concern towards increasing traffic in European Union: in 2000 railway transports' market share was 8 per cent, while same figure in US was 40 per cent. (Vassallo & Fagan, 2005; the Summary of White Paper, 2001)

The Second Railway Package was introduced in 2003. 23rd October 2003, Members of European Parliament (MEPs) voted to open up the European railway traffic system. The intention was to grant a free access to rail networks in all EU countries by 1 January 2006. (Euractiv, 2008) The Package was approved by the European Parliament and

[4] The White Paper is a report or guide which addresses problems and ways to solve them

Council in April 2004. The Council and the Parliament agreed the national railway freight transport will be deregulated 1st January 2007. (Mäkitalo, 2007)

Today the European Union railway policy has five objectives (Alexandersson & Hulten, 2005): 1) create a common railway transport market, 2) achieve uniform technical and operational standards in all member states, 3) establish a common market for rolling stock and railway material, 4) provide equal conditions for competition between different transportation modes, and 5) support a continuous development towards the transport modes that are more environmentally friendly, namely railway and sea. (Alexandersson & Hulten, 2005; European Union, 2009)

European Union has introduced numerous actions in order to decentralize the transport customs. Marco Polo is a funding program which intention is to shift the transport from road to sea, air, inland waterways and railways. Marco Polo's byword well defines the purpose (Marco Polo, 2009), *"Free Roads – Clean Air: it is estimated that every Euro of Marco Polo funding generates social and environmental benefits worth six Euros or more."* The current, second Marco Polo program (2007–2013) aims to deduct road transport by programs "motorways of the seas" and "traffic avoidance". (Marco Polo, 2009)

The Rail Liberalization Index (LIB Index) is a tool, which presents the relative market opening in EU countries including Norway and Switzerland. According to LIB Index, all countries have continued to liberalize the railway market. However, the report observes the high entry barriers in few countries prevent having uniform access conditions. It is also noted that some countries are obeying the EU directives only on paper and grant feasibility to enter the networks only with restrictions. According to countries' performance, they are divided into three subgroups: advanced, on schedule and delayed. Figure 4 illustrates the situation in the European countries. (The Rail Liberalization Index, 2007)

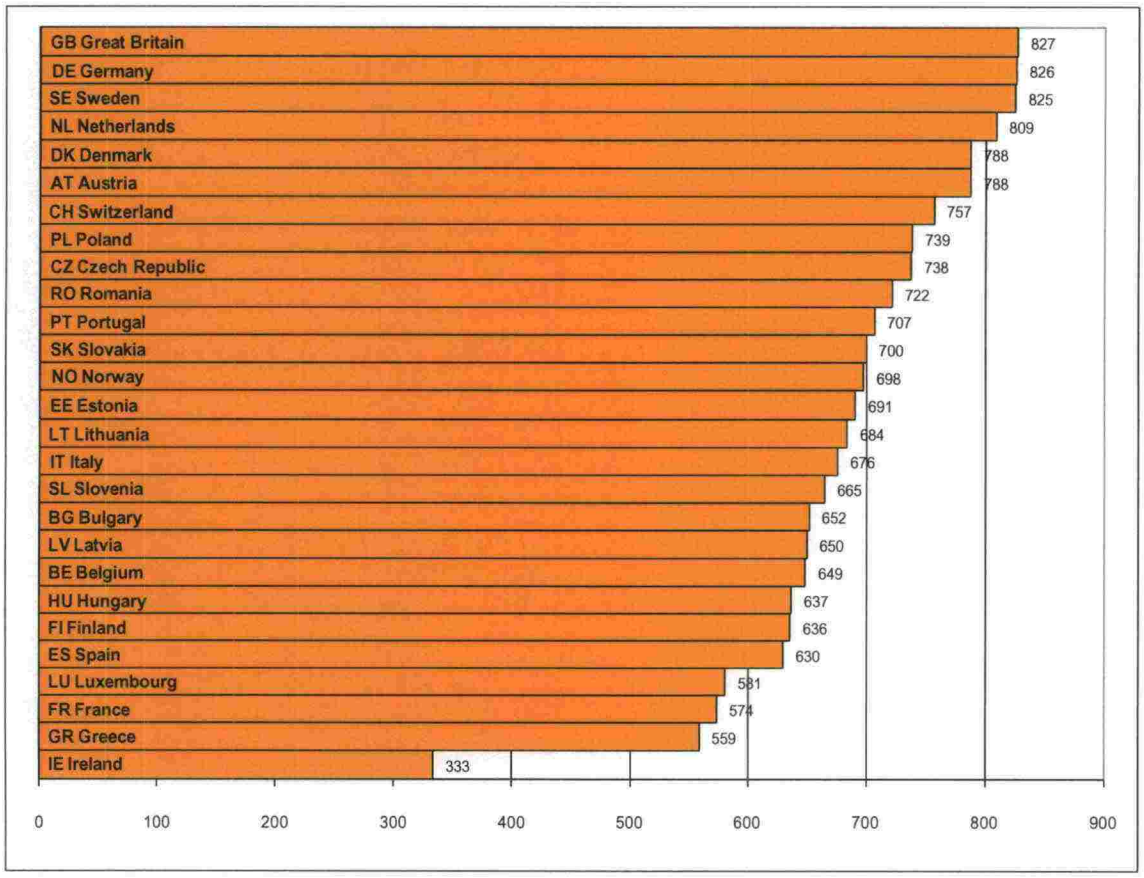

Figure 4 *LIB Index 2007, country division (Adapted from the Rail Liberalization Index, 2007)*

Figure 4 presents the status of countries' liberalization process. The four first countries, Great Britain, Germany, Sweden and Netherlands belong to "advanced": all these countries have made remarkable progress in the field of market opening. In the second and at the same time the biggest group, "on schedule" includes 18 European countries, including Finland and Poland. The third group, "delayed", consists of four nations: Ireland, France, Greece and Luxembourg. These countries have the highest entry barriers.

Research's empirical part concentrates on two countries: Sweden and Poland. Sweden is among the "advanced" countries while Poland is on the fourth place in the "on schedule" group. Finland is in the same category in 18th place. The great differences can be partly explained by the time of liberalization: Sweden opened the markets already in 1990s and Poland followed in 2000 (Hilmola et al., 2007; Taylor & Ciechanski, 2006).

2.3 Sweden

The Transport Policy Act published in 1988 functioned as the first initiative of Swedish railway freight market liberalization. The regulation was prescribed in Council's Directive 91/440/EEC, which intention was to develop the Community's common railway structure. Liberalization changed the vertically and horizontally integrated monopoly into a market characterised by decentralisation and intra-modal competition.

(Alexandersson & Hulten, 2005; EU Directive, 1992) The privatization in Sweden was *"a slow moving and incremental process"* (Hilmola et al., 2007).

Formerly the reform Swedish railway freight sector was monopolized by the Swedish State Railways (Statens Järnvägar, SJ). SJ was not only controlling and responsible for all railway related services, but also involved in ferry traffic, long-distance bus services and forwarding agents. Since the liberalization the Swedish government took a full responsibility for railway infrastructure by establishing the Swedish Rail Administration, Banverket. Banverket is an authority that is responsible for the rail network in Sweden, including monitoring and developing the rail network, operating and administrating the track system, co-ordinating all railway transport and providing support for research and development on matters related to railways. Banverket also assists the Parliament and the Government on railway issues. After Banverket's establishment, SJ concentrated on the freight operating services. (Alexandersson & Hulten, 2005; Banverket, 2009)

The Act extended the responsibility of the County Public Transport Authorities[5] (CPTAs) into railway services. However, it was not mentioned in the Act to liberalize the railways in terms of increased intra-modal competition. The vertical separation of infrastructure from operations made public acquisition by competitive bidding possible. CPTAs had tried bidding for the bus services earlier; therefore it was natural to use competitive bidding also in railway. The outcome was establishment of BK Tåg in 1990, the first new entrant for more than 40 years. (Alexandersson & Hulten, 2005)

The Swedish Ministry of Transport expressed in 1991 the resources could be used more efficiently if more railway undertakings would enter the railway market. SJ still had a strong power and many politicians were afraid it might become too strong. The Parliament declared in September 1991 that its objective is to liberalize the railways in order to increase the competition among the market. The first initiative was to subject railway market to bidding. During 1993–1994 the feasibility of liberalizing the whole rail network was discussed in various reports. In May 1994 the liberalization was passed to Parliament, despite opposition from the railway unions, the Social Democrats and the left-wing party. In September the same year, Social Democrats regained power in Parliament and postponed the deregulation. A less radical reform was suggested, taking the effect in July 1996. Open access to whole network was introduced for freight operations, based upon a belief that railway transport would increase the market share if it is forced to adapt to what to market wanted. Actual access to capacity was organized through a "Grandfather's right" clause[6], although this rule was enforced infrequently. The "Grandfather's right" was eventually rejected in 2004. (Alexandersson & Hulten, 2005; Alexandersson & Hulten, 2008)

Reforms continued in 1998 when a new Transport Policy Bill was accepted. The main concentration was to achieve more equal terms between different transport modes; railway market was supported by lowering the track infrastructure charges. While agreeing on a new transport policy, a new agency was established. The National Public

[5] CPTA was established in 1979 to coordinate regional public bus services

[6] Grandfather's right clause = operator has a right of precedence to a timetable position it had used before

Transport Agency (Rikstrafiken) started to operate 1 July 1999. Authority's main responsibilities included competitive bidding of unprofitable inter-regional services (all modes of transport), aiming at better cooperation with CPTA-bided services. Following the market entry of new operators in 2000, a new Bill's objective was to ensure equal access to functions and services for all operators. In 2001 SJ's organizational structure was divided into several state-owned companies concentrating on specified business areas. The freight division formed one company, called Green Cargo. (Alexandersson & Hulten, 2005; Alexandersson & Hulten, 2008; Green Cargo, 2009; Rikstrafiken, 2009)

Various authorities have been responsible for safety matters. The Swedish Railway Inspectorate, Järnvägsinspektionen, was established in 1988 and its main responsibility was to supervise and safety and investigate the possible accidents. The Inspectorate was part of Banverket till 2004, when the Swedish Rail Agency, Järnvägsstyrelsen, was established. Responsibilities were sifted to the new company. The last change occurred in 2009, when the Swedish Transport Agency, Transportstyrelsen, was formed. In addition to railway, agency is responsible for all other transport modes. (Banverket, Sector Report 2009; Holmgren, 2005; Transportstyrelsen, 2009)

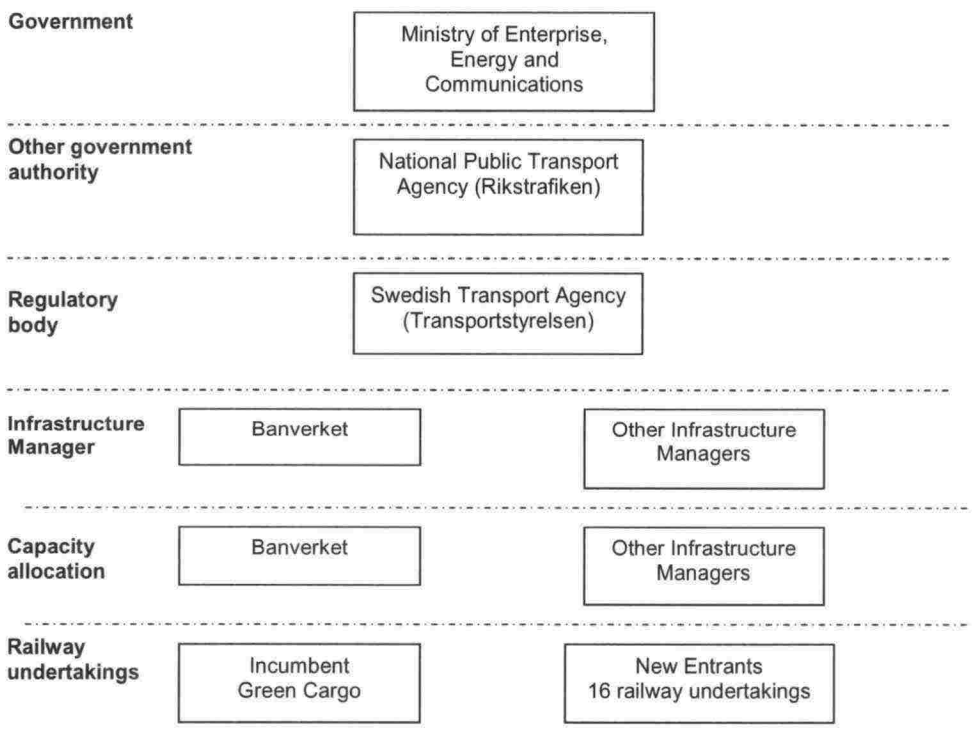

Figure 5 *Key stakeholders in the Swedish railway industry (Wolf, H & Stenbacka, H 2009, pers. comm., 8 May)*

Figure 5 presents the current key stakeholders in the Swedish railway industry. The Ministry of Enterprise, Energy and Communications is the main stakeholder, which objective is to ensure efficient transport in all parts of the country. The National Public Transport Agency, Rikstrafiken, has two main tasks: it procures public transport and develops and coordinates public transport throughout the country. Its main goal is to create high-quality transport system, safe traffic and ensure good transport environment.

Swedish Transport Agency, Transportstyrelsen, was established 1 January 2009. Earlier the duties were handled by The Swedish Rail Agency, Järnvägsstyrelsen. The Transport Agency has an overall responsibility for regulations; its railway department formulates regulations, and examines and grants licences and permits to operate on railway market. Agency's objective is to achieve efficient railway market characterized by fair competition. (Rikstrafiken, 2009; The Ministry of Enterprise, Energy and Communications, 2009; Transportstyrelsen, 2009)

The three lowest levels present the Infrastructure Managers and railway undertakings. Banverket is the main Infrastructure Manager owning and maintaining over 9 000 km network. Regional authorities own few lines, mainly in capital area. In addition, several fringe lines are owned by municipalities and authorities. Banverket is mainly financed by national grants, but it also gathers infrastructure charges from railway undertakings. The Government and Parliament determined Banverket responsible for the development of the railway sector. This includes railway transportation as well as underground and tram transportation. (Alexandersson and Hulten, 2005; Banverket, 2009)

Today Swedish railway freight market has 17 railway undertakings; incumbent is Green Cargo and new railway undertakings include actors like Hector Rail, Tågåkeriet and Tågfrakt (Wolf, H 2009, pers.comm., 26 March). The full list of railway undertakings is presented in appendix 6. However, the freight railway market is dominated by Green Cargo (Järnvägsstyrelsen, 2008). Table 2 presents the main railway undertakings in the freight market and describes the turnovers during 2005–2007.

Table 2 *Swedish railway freight railway undertakings' turnover during 2005–2007/ thousand SEK (Järnvägsstyrelsen, 2008)*

Railway undertaking	2007	2006	2005	Market share 2007
Green Cargo AB	5 294 000	5 204 000	5 260 000	75,5 %
CargoNet AB	525 433	469 657	497 773	7,5 %
Malmtrafik i Kiruna AB	484 548	449 314	462 821	6,9 %
TGOJ Trafik AB	241 699	212 014	189 704	3,4 %
Hector Rail AB	181 336	131 959	85 749	2,6 %
Tågåkeriet i Bergslagen AB	127 031	109 267	102 320	1,8 %
Nya Inlandsgods AB	bankruptcy	74 723	68 297	
TX Logistik AB	62 718	57 146	59 547	0,9 %
Bantåg Nordic AB	34 684	9 026	16 160	0,5 %
Tågfrakt AB	13 281	8 530	5 546	0,2 %
Nordic Haulage AB	11 365	5 903	20 719	0,2 %
Midcargo AB	30 324			0,4 %
Peterson Rail AB	3 894			0,1 %

The significant differences between railway undertakings are described in table 2. Green Cargo's dominant position on the market is well on display. Green Cargo's superiority compared to other actors is outstanding: turnover is 75 per cent of whole market, while the next two railway undertakings (CargoNet and Malmtrafik i Kiruna) turnover is around 7 per cent. Actually, CargoNet AB is a subsidiary of CargoNet AS, which is the national railway freight undertaking in Norway. Railway undertaking's ownership is divided by the Norwegian State Railways (Norges Statsbaner, NSB) 55 per cent and Green Cargo 45 per cent. (CargoNet, 2009) Rest of the railway undertakings are small actors with few per cents' market shares. Worth mentioning is the market's fluctuation: although some railway undertakings faced decreases in 2006, all were able to increase the turnover in 2007.

Internationalization is increasing in railway market. In addition to Sweden, many railway undertakings have traffic to / from Norway, Denmark and Germany. Mainly the railway undertakings, which have a subsidiary or strategic alliance with a foreign company are operating abroad (Green Cargo & Malmtrafik i Kiruna). However, other railway undertakings, for example Hector Rail and Tågåkeriet, are also operating in the international markets. (Banverket, 2007; Hector Rail, 2009; Tågåkeriet, 2009)

2.4 Poland

The first impulse towards liberalized railway freight market in Poland happened in 1997, when the Railway Transport Law was implemented. It opened the rail network for domestic and international operators. Although Poland joined the European Union only in May 2004, government decided to implement the main directives already earlier. (Poland society, 2009) One of the most important directives in European Union, Directive 91/440, continued the Polish railway freight market's deregulation process in 2000, when the Railway Act on restructuring, commercialization and privatization of PKP was executed. (Steer Davies Gleave Poland, 2003; Wronka, 2007) During the years 1998 – 2002 Polish government granted 20 concessions for entering the railway market; however, because of lack of sufficient capital only few railway undertakings applied the possibility. (Wronka, 2007)

The situation improved significantly, when the new Law on Railway Transport took effect in March 2003, replacing the older version. The Polish railway industry transformed to more liberalized direction, which needed changes in industry's key stakeholders (see figure 6).

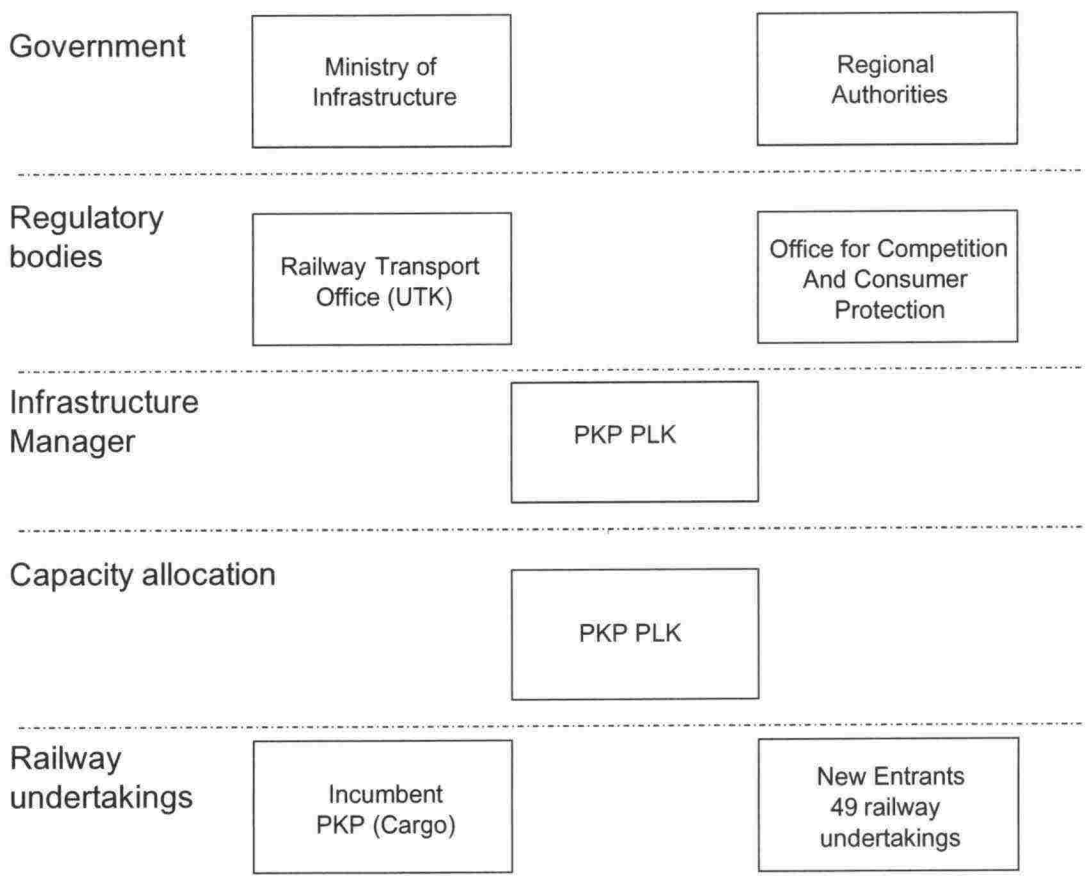

Figure 6 *Key stakeholders in the Polish railway industry (Adapted from Steer Davies Gleave Poland, 2003; Wrobel, J 2009, pers. comm., 21 April)*

The Governmental level, Ministry of Infrastructure and regional authorities, are responsible for railway related matters on the top level. Ministry develops the transport

policy and is responsible for issuing licenses to railway undertakings. Additionally, state provides financial support to the Infrastructure Manager. Regional authorities take care of intra- and cross-regional railway services. (Steer Davies Gleave Poland, 2003)

Second level, regulatory bodies, includes Office for Railway Transport (Urzad Transportu Kolejowego, UTK) and Office for Competition and Consumer Protection (OCCP). UTK operates as the Main Railway Inspectorate, and its main responsibility concerns the licenses and certificates for new entrants (Art. 43 item 1 of the Act of 28 March 2003 on railway transport – Dziennik Ustaw - Polish Office Journal no. 86 item 789 as amended). UTK's Chairman is entitled to grant, refuse granting, change or withdraw the license. Additionally, its responsibility is to minister and concede the safety certificates (rolling stock as well as railway undertakings). Another regulatory body, OCCP, enforces the competition in Poland. (Steer Davies Gleave Poland, 2003)

PKP SA is a joint stock company which took over all rights and commitments of the state-owned firm Polish Railways. The sole shareholder is Ministry of Finance. The holding company has large number of subsidiaries, including PKP Polskie Linie Kolewoje s.a (PKP PLK SA), which operates as Infrastructure Manager and is responsible for capacity allocation. Company is responsible for the national rail network. The main responsibilities include network's management, constructing timetables, granting rail capacity to railway undertakings and repairing the network. PKP PLK defines the infrastructure charges, which are finally approved by UTK. As Infrastructure Managers all around the Europe, PKP PLK is responsible for publishing the Network Statement. (PKP PLK, 2009; Steer Davies Gleave Poland, 2003)

The lowest level includes the railway undertakings; the incumbent and the private undertakings that entered the market after the liberalization. PKP group is presented by two companies: PKP Cargo SA, which is the main actor in the Polish railway market and PKP LHS, which operates in wide gauge line in south-east Poland. (PKP Cargo, 2009; PKP LHS, 2009; Steer Davies Gleave Poland, 2003) The amount of private railway undertakings started to increase in 2003, when the concessions were replaced by licenses; during 2003–2005, new entrants conceded 57 licences. In the end of year 2005 Polish railway freight market had 65 railway undertakings, which is one of the highest numbers in whole Europe. Today the number is over 90 (Wrobel, J & Imieninska, J 2009, pers. comm., 25 March). Although new entrants have entered the markets, the dominant actor is PKP Cargo S.A., part of the old PKP company, which held the monopoly power before the deregulation process. PKP Cargo's market share measured in tonne kilometres was 87.8 per cent in 2005. (Wronka, 2007) However, in 2007 PKP Cargo's market share dropped 2.5 per cent from the previous year, while the main competitors, CTL Logistics (+0.6 %) and PCC Rail (+0.4 %), managed to improve their shares (Melck, 2008). The situation in the end of year 2008 is presented in figure 7.

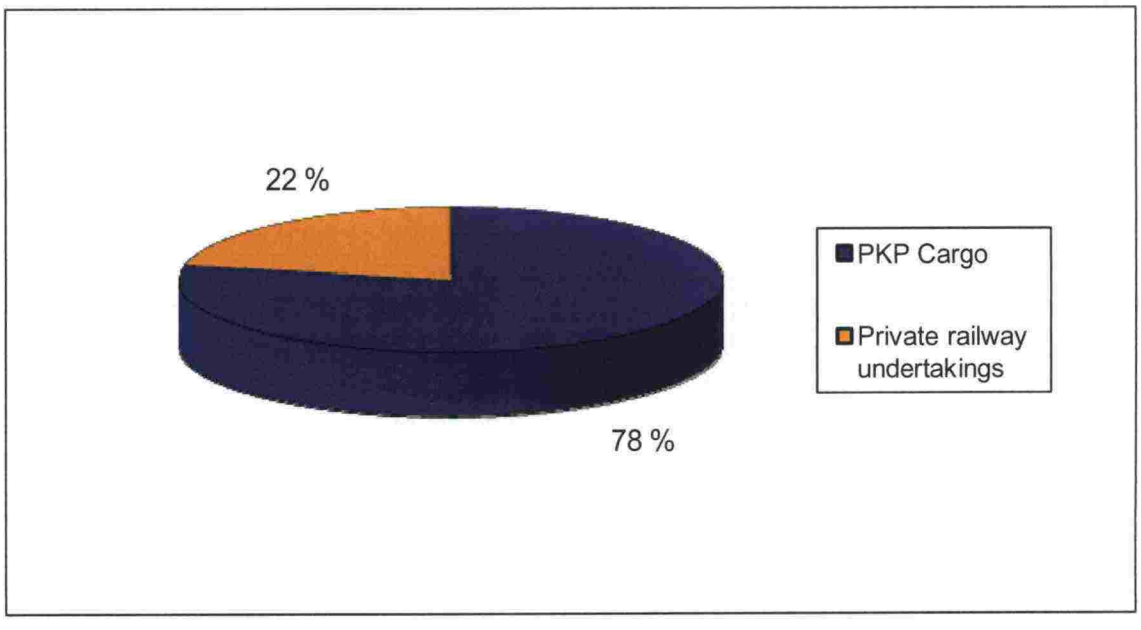

Figure 7 *Market shares in Poland / PKP Cargo versus private undertakings (Adapted from ZDG TOR, 2009).*

The private railway undertakings' market share in the end of the year was 22 per cent. Although over 90 undertakings have an operating license, 49 are counted as active players. (Wrobel, J & Imieninska, J 2009, pers. comm., 25 March). A recent list of active railway undertakings in Polish railway freight market is provided in appendix 7. The market share between the private railway undertakings is described in table 3.

Table 3 *Structure of transport performance in 2008, private railway undertakings (Adapted from ZDG TOR, 2009)*

Railway undertaking	**Market share / %**
CTL	27.1
PCC PTKiGK Rybnik	25.4
Lotos Kolej	18.5
PTK Holding	10.5
PKN Orlen	5.8
Pol-Miedz-Trans	4.2
Rail Polska	2.6
Freightliner	1.9
Others	4.0

Table 3 notes clearly the structure of Polish railway freight market. In addition to PKP Cargo, three bigger players operate on the market. Five railway undertakings have market share between 10.5 and 1.9 per cent, all the other undertakings' market share is only 4 per cent.

One of the key characteristics in Polish railway freight market is internationalization. Over 20 railway undertakings have operations abroad, mainly in Germany and Czech

Republic. (Imieninska, J 2009, pers. comm., March 25) Country's location in central Europe is ideal for the international traffic.

2.5 Finland

The Railway Act (L555/2006) is often seen as the core of Finnish railway legislation. The Act came into effect in September 2006, and it interlinked the previous Railway Act (198/2003) and the directive on the interoperability of the trans-European conventional railway system. The Railway Act mobilized in 2003 was nationally used to implement the first Railway Package. By the same token, the latter Railway Act was used to nationally implement the second Railway Package. However, the Railway Act which came into force in 2006, had another important meaning: with effect from 1 January 2007, it opened the national railway freight market for competition in Finland. (L555/2006; Mäkitalo, 2007)

The operators on the Finnish railway market are the Finnish Ministry of Transport and Communications, the Finnish Rail Administration, the Finnish Rail Agency, the railway undertakings as well as railway construction companies. This is illustrated in figure 8.

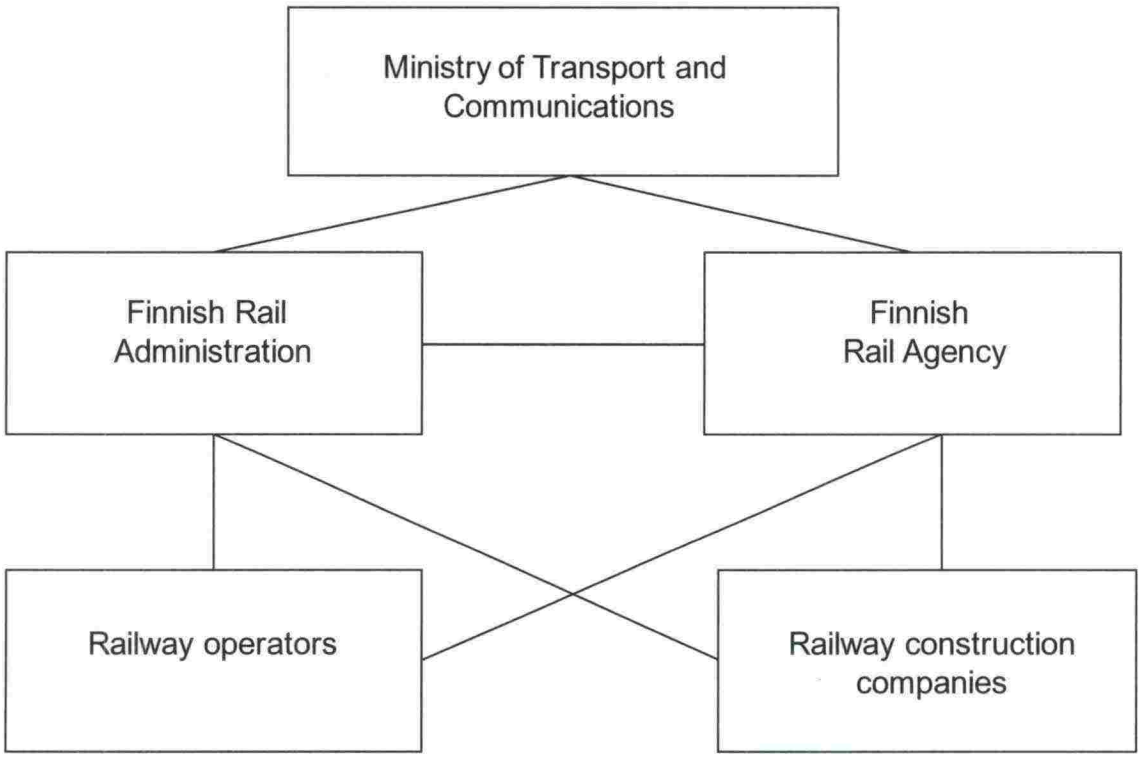

Figure 8 Operators in the Finnish Railway sector (Mäkitalo, 2007, p. 21)

The Ministry of Transport and Communication can be seen as a parent organization in the Finnish railway sector. The Ministry is responsible for general control and supervision of the railway industry: it manages the railway maintenance funds, and is responsible for supervision of the Finnish Rail Administration and the Finnish Rail Agency. Additionally, ministry is responsible for conceding licenses for railway undertakings. (LVM, 2009; Mäkitalo, 2007)

The Finnish Rail Administration is the Infrastructure Manager of the state-owned rail network. The main responsibilities include maintaining and developing the rail network and allocating the rail capacity. In addition, the Finnish Rail Administration is in charge of traffic control and passenger information. (Mäkitalo, 2007; RHK, 2009) Furthermore, the Finnish Rail Administration is obliged to publish the Network Statement, which is published in accordance with the Railway Act and European Union Directive 91/14/EC. The Network Statement is published annually; the publication for the timetable period 2010 is the seventh published Network Statement in Finland. The main objective of the Network Statement (RHK, the Network Statement, 2008) is to *"describe the access conditions, state-owned rail network, capacity allocation, services supplied to railway undertakings and the basis on which the infrastructure charge is determined."* Additionally, the publication defines *"the general rules, deadlines, procedures and grounds applicable to capacity allocation and the charging systems."* (RHK, the Network Statement 2008)

The Finnish Rail Agency is responsible for monitoring the overall safety issues, including general railway safety, the safety of railway systems and the safety of operations handled by railway undertakings and rail network administrations. According to the European Union safety directive, every member state is obliged to have a safety authority that is independent of the Infrastructure Manager and railway undertakings. Therefore, the Finnish Rail Agency was established in connection with the effectuation of the second Railway Package in 2006. (Mäkitalo, 2007; RHK, 2008)

The two latter operators in the Finnish railway sector are the railway undertakings and railway construction companies. Railway undertaking is defined in Railway Act as a private-owned railway company or other corporation, which operates railway transport as its major business and controls the needed rolling stock. Today only one railway undertaking, VR Cargo which belongs to governmentally owned VR Limited, operates on the Finnish market. (L555/2006; Mäkitalo, 2007; VR Limited, 2009)

3 MARKET ENTRY AND BARRIERS TO ENTRY

3.1 Competition and different forms of markets

"In every great monarchy in Europe the sale of the Crown lands would deliver a much greater revenue than any which these lands ever afforded to the Crown... When the Crown lands had become private property, they would, in the course of few years, become well improved and well cultivated."
Adam Smith, The Wealth of Nations (1776; p. 370– 371)

Adam Smith, who is widely considered as the father of modern economics, described in 1776 in his book "The Wealth of Nations" how situation would improve if lands would be privatized (Farmer, 1997; Begg et al., 1994; 313; Smith & McCulloch, 1863). This publication is often regarded as the basics for classical political economics, and it is considered as an original work for economics as a separate field of science.

Railway is often cited as a nationalized[7] industry, among steel, banking and oil. These types of industries tend to be capital-intensive; due to the presence of large capital costs that generates the economics of scale, many of the nationalized industries are natural monopolies. There has been a distinctive difference between European countries and United States: European countries used to acquire public ownership of natural monopolies, US preferred to utilize public regulation. Hence, when countries noticed public sector was too involved in the economy, the actions varied. European countries turned to privatization, whereas US stress was on deregulation, which started in 1978 with airlines. Railway followed in 1980. (Begg et al., 1994; 313-314; OECD, 1997) The Swedish Parliament decided to nationalize the railway in 1939, in order to ensure stable economic situation. According to Edström & Tullberg (1998), this was a starting point for modern Swedish railway. In UK the process occurred in 1947, when private railway undertakings were nationalized into British Rail. (Edström & Tullberg, 1998; Hatano, 2004)

The two extreme opposite ends in the market structure are perfect competition and monopoly or monopsony. By perfectly competitive market Begg et al. (1994) signify a structure where both buyer and seller believe that their own decision have no effect on the market price. A monopolist is the only seller in certain industry; a monopsonist is the only buyer in that industry. In between the extreme opposites stand monopolistic competition and oligopoly. Broader term of monopolistic competition, oligopoly and monopoly is imperfect competition. Basically it means a company cannot sell as much as it wants on a certain price. The output price depends on the quantity of goods produced and sold. (Baye, 2005; Begg et al., 1994; 132–157) Table 4 illustrates the market structure more precisely.

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[7] Nationalization = act of taking an industry into a public ownership of national government or state

Table 4 Market structure (Adapted from Baye, 2005 & Begg et al., 1994; 157)

Characteristic	Perfect competition	Monopolistic competition	Oligopoly	Monopoly
Number of firms	Many	Many	Few	One
Ability to affect price	None	Limited	Some	Considerable
Entry barriers	None	None	Some	Complete
Product	Homogeneous	Differentiated	Homogeneous / Differentiated	Only one
Example	Agriculture	Fast-food	Cars	Post office

Perfect competition

In a perfectly competitive market nobody believes their own actions have an effect on market price. There are many buyers and sellers in the market and each of them produces a homogeneous product. Perfectly competitive market faces no entry barriers; there is free entry into and exit from the market. Since all companies sell identical product or produce identical service, customers view all products available in the market as perfect substitutes. Perfect information ascertains consumers have inclusive knowledge about quality and price of each company's product. Because there are no transaction costs, all companies charge the same price for the product or service. Since there are no entry barriers, additional firms can enter the market effortlessly. Equally, firms can exit the market easily. (Baye, 2005; 266–268; Begg et al., 1994; 132 – 133) According to Mäkitalo (2007), Finnish railway freight transport does not fulfill perfect competition's prerequisites.

Monopolistic competition

An industry with monopolistic competition has many sellers producing close, but not perfect substitutes. Companies can influence their market shares to some extent by changing the price relative to its competitors. Companies utilize product differentiation, which might be based on brands, location or tastes. There are no barriers to entry, which enables companies to enter and exit the market easily. The demand curve is downward-sloping, stating companies must reduce products' price in order to increase sales. (Baye, 2005, 296–297; Begg et al., 1994, 156–160)

Oligopoly

Oligopoly refers to a market where there are few large companies acting in the industry. Producer's price depends not merely on its own output but also on its main competitors' actions. Therefore companies' supply decision depends on guess how its rivals will react. (Begg et al., 1994, 156 – 162) Depending on oligopolistic model, products may be either homogeneous or differentiated. However, barriers to entry exist in all models. Namely, the models are Sweezy, Cournot, Stackelberg and Bertrand oligopoly. (Baye, 2005, 315–338)

Monopoly

Monopoly refers to a situation where only one player serves the entire market. There are no close substitutes and therefore monopolist is able to charge any price. (Begg et al., 1994, 132) Since all customers demand the product or service from the monopolist, the market demand curve is the same as the demand curve for the product. Generally, this means the consumers can choose only the price – quantity combinations among the curve. Monopolist can increase sales only by lowering the price. If price requested is too high, consumers might decide to buy nothing. (Baye, 2005; 280–282)

According to Begg et al. (1994), government legislation can influence on market structure. Nationalized industries are exclusive licensed producers and therefore legal monopolies. Patents may allow transient monopoly. In a case of nationalized industry, state decides price and output. Railway industry used to belong to this group. (Begg et al., 1994; 132–145; 157)

Natural monopoly

Monopoly originating from substantial fixed costs and economies of scale is called a natural monopoly. It is a market structure where the most effective market condition is achieved only by one producer. Although there might have been several competitors in the beginning, market forces allow only one company to survive. (Baye, 2005, 562; Begg et al., 1994, 157, 304) According to several studies (see De Jorge & Suarez, 2003; Mäkitalo, 2007; Tyrrall 2004) railway transport is a good example of natural monopoly, due to large fixed costs and need for capital guiding to economies of scale. According to Mäkitalo (2007), earlier was regarded that railway transport and construction would be organized in most effective manner if only one company would offer the services. The vertical separation, namely separating transport and maintenance, would rescind the natural monopoly, though economies of scale are connected to the operation of railway transport. Mäkitalo (2007) states vertical separation admits small operators to enter the market and offer transport services. Only imperative is to acquire a small rolling stock. (Mäkitalo, 2007)

3.2 Market entry barriers

The history behind the barriers to entry leads back to 1936, when Donald H. Wallace proposed in his study (Wallace, 1936, 83) *"The nature and extent of barriers to free entry needs thorough study"*. In 1949, thirteen years later, Joe S. Bain published a book which can be classified as a starting point for entry barriers' theoretical study. In his article (Bain, 1949) the researcher introduced first time the conclusion that potential competition may lead established companies to sacrifice present profits in order to prevent entry. Although Bain published this first article already in 1949, several researchers (see Baron, 1973; McAfee et al., 2004; Pehrsson, 2009; Schmalensee, 1981) think Bain pioneered the barriers to entry theory only in 1956 when his book "Barriers to New Competition" was published. In his book Bain (1956) investigated market entry barriers created by 1) product differentiation, 2) absolute cost advantages, and 3) economies of large scale operations (Baron, 1973). Table 5 lists the definitions of barriers to entry stated by various authors.

Table 5 Authors' definitions of "barriers to entry" (Adapted from McAfee et al., 2004, 461–463; von Weizsäcker, 1980, 13)

Author	Definition
Bain (1956)	"A barrier to entry is an advantage established sellers in an industry over potential entrant sellers, which is reflected in the extent to which established sellers can persistently raise their prices above competitive levels without attracting new firms to enter the industry."
Stigler (1968)	"A barrier to entry is a cost of producing (at some or every rate of output) that must be borne by firms seeking to enter an industry but is not borne by firms already in the industry."
Ferguson (1974)	"A barrier to entry is a factor that makes entry unprofitable while permitting established firms to set prices above marginal cost, and to persistently earn monopoly return."
Fisher (1979)	"A barrier to entry is anything that prevents entry when entry is socially beneficial."
von Weizsäcker (1980)	"A barrier to entry is a cost of producing that must be borne by a firm seeking to enter an industry but is not borne by firms already in the industry, and that implies a distortion in the allocation of resources from the social point of view."
von Weizsäcker (1980, p. 13)	"Barriers to entry into a market then can be defined to be socially undesirable limitations to entry resources which are due to protection of resource owners already in the market."
Gilbert (1989)	"An entry barrier is a rent that is derived from incumbency."
Carlton & Perloff (1994)	"A barrier to entry is anything that prevents an entrepreneur from instantaneously creating a new firm in a market. A long-run barrier to entry is a cost necessarily incurred by a new entrant that incumbents do not (or have not had to) bear."
McAfee et al. (2004)	"An economic barrier to entry is a cost that must be incurred by a new entrant and that incumbents do not or have not had to incur."
McAfee et al. (2004)	"An antitrust barrier to entry is a cost that delays entry and thereby reduces social welfare relative to immediate but equally costly entry."

As illustrated in table 5, barriers to entry are defined several ways. However, in all definitions costs are mentioned one way or another. Additionally McAfee et al. (2004) divided barriers into economic and antitrust barriers. According to authors, all economic entry barriers are antitrust barriers, but not all antitrust barriers are economic barriers. Same trend is on display when comparing two schools which are recognized in the field of research on competition and market entry barriers. Harvard school's best-known researcher is Joe S. Bain and Chicago school's George Stigler. The main difference between these two schools is that Bain's definition refers to a market situation where price level is higher than in the competitive situation; Stigler's definition concentrates on costs which arises for the new entrant, but not for the company already operating on the market. Stigler's explication is narrower than Bain's: some costs are barriers in compliance with Bain and not according to Stigler; but all barriers stated by Stigler meet Bain's definition. (McAfee et al., 2004; Mäkitalo, 2007)

Pehrsson (2009), building on insights of Shepherd (1979), has recently stated a barrier to entry can be classified exogenous or endogenous. Exogenous barriers are the ones that are entrenched in the underlying market conditions. Therefore, companies cannot control barriers at issue. These include for example incumbents' product differentiation, need for capital for the establishment, customers' switching costs, number of competitors and government policy. On the contrary, endogenous barriers are generated by the companies through the market strategies and the competitive behavior. These barriers are based on incumbents' reactions towards new entrants' establishment plans, for example incumbents' price competition and its reactions in general. (Pehrsson, 2009) Nonetheless, Gable et al. (1995) state the entry barrier types are often reinforcing, which might complicate the interpretation.

According to earlier studies (Brewer, 1996; Ludvigsen & Osland, 2009; Mortimer et al., 2009; Mäkitalo, 2007; Steer Davies Gleave Sweden, 2003), the main barriers to entry in railway market are exogenous barriers: acquiring the rolling stock and bureaucracy. However, in addition there are differences between countries. Brewer's study (1996) revealed the perceived level of access charges was seen a barrier in UK. In Finland (Mäkitalo, 2007) and Sweden (Steer Davies Gleave Sweden, 2003) researches estimated the difficulty of accessing the services creates a great market entry barrier. Cantos & Campos (2005) stated intermodal competition can create the market entry barriers. Same trend was seen already before the deregulation, which is visible in a working paper done by Nash & Preston (1992). They found out the main barriers to entry at that time were a lack of second hand rolling stock market, access to maintenance and depot facilities and sunk costs of infrastructure (Nash & Preston, 1992). Worth mentioning is the congruent line with Mäkitalo's results: although the time gap between the studies is fifteen years, as major barriers to entry were concluded rolling stock and access to maintenance and depot facilities. (Mäkitalo, 2007; Nash & Preston, 1992)

3.3 Market entry strategies

Pehrsson (2009) presented in his recent article a model which proposes a relationship between barriers to entry, incumbents' market strategies and the market strategy of new entrant. Model is illustrated in figure 9.

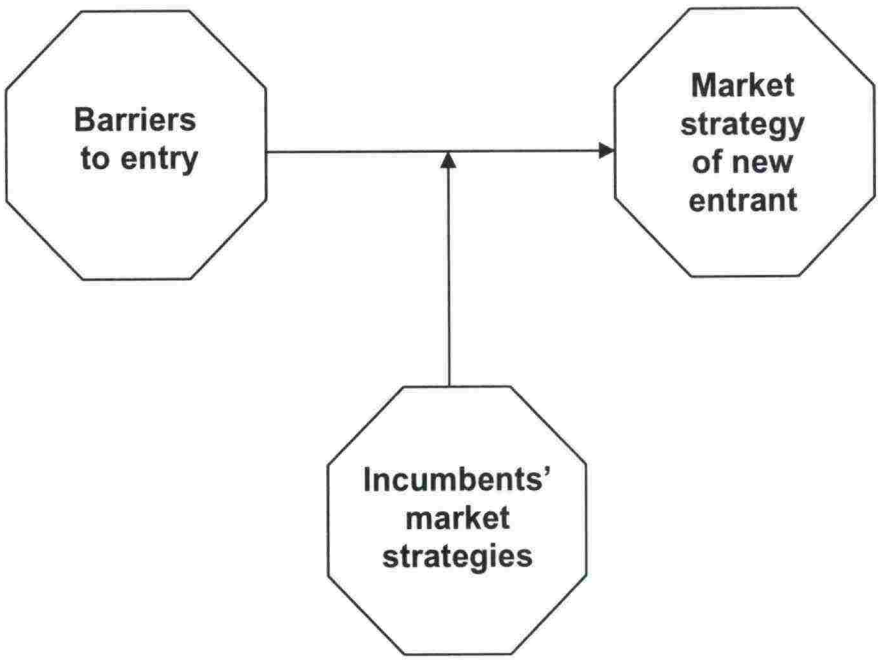

Figure 9 *Correlation between market strategies and barrier to entry (Adapted from Pehrsson, 2009)*

Pehrsson (2009), building on insights of Hambrick (1983) and Peteraf & Reed (2007), adapts in figure 9 a contingency perspective. The model proposes that new entrant's market entry strategy is contingent on the external conditions of market entry barriers. The model also assumes that competition constitutes the main source of entry barriers. Therefore model proposes influence between incumbent company's strategy and barriers to entry. In addition, the entry timing plays a big role in Pehrsson's model. Several researchers (see for example Kotler, 1988; Makadok, 1998; Pehrsson, 2004) noted the entry strategies differ depending on timing. Company entering the market first enjoys "first mover advantages", compounded of locking up key customers and gaining potential reputational leadership. Generally, it is harder for new operators to match the performance of the first entrant and attract customers due to extensive customer loyalties asserted previously. (Kotler, 1988, 436; Pehrsson, 2009)

Incumbents and new entrants utilize certain market entry strategies. Miller (1987) concluded the main factors of strategy were product / market scope, product innovation, differentiation and cost control. Product / market scope is equivalent to breadth of business activities, which basically means the extent of product and customer types. Innovation is a modern way to differentiate the product (Kustin, 2004); authors have noted services are also a key to differentiation (Pehrsson, 2009). Porter (1980) states price is also regularly subject to differentiation.

Koch (2001) presented a model which divides the factors influencing market entry mode selection to external, internal and mixed categories. The main aspects are gathered to table 6.

Table 6 *Factors having an effect on market entry mode selection (Adapted from Koch, 2001)*

Category	Factor
External	Environment characteristics
	Market barriers
Internal	Company size / resources
	Market entry experience
	Management risk attitudes
	Market share targets
	Profit targets
Mixed	Competencies, capabilities and skills required / available
	Sufficiency and reliability of information inputs

The main external factors are environment characteristics and market barriers. As highlighted in chapter 3.2, the breadth of market barriers is remarkable. However, in the first stage the governmental regulations are the main entry barrier: market needs to be deregulated and open for competition in order to enter. The information available concerning the market environment is essential, in order to understand the niches or other potentials the market can offer. (Koch, 2001; Kotler et al., 1986, 249, 252–253; Kotler, 1988, 170)

Generally, small companies have limited choices of entry modes due to lack of resources (Benito & Welch, 1994). Another important internal factor is market entry experience: personnel's considerable knowledge of an entry process is vital when deciding the entry mode. Company's financial situation and managements' attitude towards risks also affects on the process. Conjoined with market share and profit targets, companies can evaluate the contingencies and choose a model delivering the best possible profit. In accordance with name, mixed factors combine internal and external elements, such as competences and capabilities. (Koch, 2001)

After company has evaluated the factors affecting on the market entry mode selection and is aware of own strengths and weaknesses, the next step is to decide which strategy to use when entering the markets. Naturally, if company in question is a start-up, the entrepreneur's background and knowledge presents a big part. Mitchell (1988) concluded behind the most successful companies are founders who integrate their personal goals and objects of interest into company's operations and strategy. According to study made in UK (Robertson et al., 2003), the most critical factors to start-ups are motivation, idea and market. Same research concluded the main obstruct is finance: over 50 per cent of interviewees stated it as a major concern (Robertson et al., 2003). Macht & Robinson (2009) & Sørheim (2005) have also concluded the start-ups face considerable challenges in achieving long-term finance. Sørheim (2005), building on insights of Binks (1996), states the entrepreneurial firms' limited history creates barriers, because their future is hard to predict. Therefore external financing is

indispensable. In addition to financing by banks, start-ups can pursue help from venture capitals or private persons. Private, wealthy individuals who invest money and experience in small start-ups with which they have no family bonds are called business angels (Deakins, 1996). The finance provided by business angels is referred to "informal venture capital"; similar to formal venture capitalists, business angels classically invest money in return for an equity investment in the company (Wiltbank, 2005).

Already existing companies can use various strategies to enter the markets. Vertical integration, strategic alliances and subsidiaries are the mostly used forms (Blomstermo et al., 2006; Kotler, 1988; Kotler, 2000; Lee et al., 2000; Mäkitalo, 2007). Vertical integration can be either backward or forward integration; main users of this tactics are oil producers and mining companies. Generally vertical integration lowers costs and companies can gain a larger share of value-added streams. In addition, engaging vertical integration companies can manipulate prices. Disadvantages include high costs in some parts of value chain and a lack of flexibility. (Kotler, 2000, 222)

Hertz (1996) defines strategic alliance as *"a relationship between two organizations that bas some impact on the total network of the industry and will lead to changes in the network positions of the organizations involved in the strategic alliance"*. Lee et al. (2000) found in their study that strategic alliances are an effective entry-cum-deterrence strategy for SMEs (small and medium-size enterprises) to successfully enter the markets which are dominated by major corporations. Kotler (1988) presents Biggadike's research (1977), which concluded companies entering a market that is already occupied by incumbent firms should use following marketing mix:

- Higher prices and higher quality
- Narrower product line
- Narrower market segment
- Similar distribution channels
- Superior service
- Lower expenditure on sales force, advertising and promotion
- (Kotler, 1988, 344)

During the last decades service firms' internationalization process has faced a growing interest in researching (Aharoni & Nachum, 2000; Blomstermo et al., 2006; Dawson, 2001). Generally, service firms may enter foreign markets using various entry modes, for example licensing, joint ventures or by establishing a subsidiary. According to Blomstermo et al. (2006), the choice of entry mode is critical and closely related to control. Control is determining as it ascertains achievement of the organizations' purpose. Control also determines risks and returns. (Blomstermo et al., 2006)

In order to secure a lasting, defensible position in the market place, companies must use positioning. Positioning embodies presenting unique set of products or services and making sure the target market has cognizance of them. Positioning can be achieved by several strategies: building on present strengths, creating a niche or relocating

competitors. The position strategy chosen needs a careful selection. (Kotler & Andreasen, 2000)

Companies can be classified by the role they play in the target market. Classifications are leader, challenger, follower and nicher (Kotler 2000). Market leader has the largest market share and it normally leads in price changes, distribution coverage and promotional intensity. However, unless a dominant company enjoys a legal monopoly, its situation might not be so easy. Market leader must maintain vigilance, due to product/service innovations and competition. (Kotler, 1988, 318–320; Kotler, 2000, 230–232; Tse et al., 2004)

Market challengers are the companies ranking second, third or fourth in an industry classification. They are often also called runner-ups or trailing companies. Challengers must define carefully whom to attack: it can attack the market leader, firms of its own size or small regional firms. The attack strategy needs to be chosen carefully. In order to succeed, companies can reinforce their strategies for example by price-discount, lower price goods, improved services or intensive advertising promotion. (Kotler, 1988, 330–339; Kotler, 2000, 240–244; McDonald & Roberts, 1992)

Many companies prefer to follow the leader and use the way market leaders and challengers have unfolded. By using the follower strategy, company avoids the expenses of developing a new product; educating the market and distribution. Although follower follows the path unfolded by someone else, it does not mean market followers lack strategies. They must know how to keep current customers and attract new customers. Every market follower tries to give distinctive advantages to the target market, e.g. location or services. However, if the follower does not want to follow others in large market, an alternative is to be a leader in a smaller market. Generally, small companies avoid competition with large players and therefore target on small markets, niches. Niching strategy's main risk is that the market dries up or is attacked. In this case, company is fixed with special resources that might not have high-value alternative use. (Kotler, 1988, 339–344; Kotler, 2000, 244–247)

Kotler (2000) reminds although focusing on competitors is important, companies can be classified into two types: competitor-oriented and customer-centered. Customer-centered company has a better position to identify new opportunities. By overseeing customers' needs, it can decide which needs are most important to serve with possible resources and objectives. (Kotler 2000, 247–249)

Brewer (1996) conducted a survey concentrating on the organizations utilizing railway freight services during summer and autumn 1994. Researcher received 72 answers from 178 distributed, which gives responsive rate 40.4 per cent. According to Brewer's research (1996), a vast majority of respondents think the market entry is "not very easy" (27) or "not at all easy" (18). At that time, three respondents thought entry process is "quite easy". Answers concerning likely methods of entry and easiest perceived methods of entry reflect the same result: sub-contract operations were seen as the best choice, over to own account operations and third-party / multi-uses basis. (Brewer, 1996)

3.4 Tools and framework to analyze industry

3.4.1 Strategic groups

The main difference between companies operating in an industry is their competitive strategy. According to Feka et al. (1997), pursued competitive strategy is directed from companies' strengths and weaknesses; therefore companies having similar dimensions as strengths and weaknesses are likely to follow similar strategies. This assumption permits us to group the companies in an industry into strategic groups.

The term "strategic groups" was created by Michael S. Hunt in his doctoral dissertation in 1972 and popularized by Michael E. Porter in 1980 (Hatten & Hatten, 1987, 330). Feka et al. (1997) state Hunt defined strategic group as *"a group of firms within the industry that are highly symmetric with respect to cost structure, the degree of vertical integration, and the degree of product differentiation, formal organization, control systems and management rewards / punishments, and the personal views and preferences for various possible outcomes"* (Feka et al., 1997, 66). Porter (1980) defines *"strategic group is the group of firms in an industry following the same or similar strategy along the strategic dimensions"*. Porter clarifies the situation by an example: if all companies follow the same strategy, an industry has only one strategic group. At the other extreme end, each company would create an own strategic group. Generally, there is small number of strategic groups which conquer the main differences between the operators in the industry. By grouping companies into strategic groups their structure can be examined and analyzed and its attractiveness can be checked. In addition, the competition within the group and between groups can be studied. According to Feka et al. (1997), clustering companies into strategic groups should be started by examining company's position against Porter's five forces. By analyzing the factors presented in chapter 3.3, company's strengths and weaknesses can be isolated. These factors recognize company's position and its competence respond to industry. Therefore, it leads to assumption that companies with similar strengths and weaknesses may have identical competitive advantages, and they probably act alike in disorders in their competitive environment. (Feka et al., 1997, 66–67; Porter, 1980, 129–130)

According to Porter (1979), strategic groups' presence within an industry affects the expected profit rates in several ways. Market entry barriers differ among strategic groups; in addition, the presence of multiple strategic groups affects the competitive rivalry. Porter (1979) stated the mutual dependence is noted more effortlessly within a strategic group than between the groups; therefore the arrangement of the groups defines how strong competition the groups will face. Stronger groups may have preferable bargaining power with buyers and suppliers, which may lead to demand's lower cross elasticities with the substitute industries. (Porter, 1979, 214–215)

In his empirical study, Porter divided firms into two categories defined as industry leaders and followers. Industry leaders were defined as the largest companies in the industry which are characterized by strategies prospectively attaining economies of scale, in-house workshop, vertical integration and national advertising. The followers

are likely to be specialized in regional strategies or niche-strategies. Therefore the division conquers some distinction among strategic groups. (McGee & Thomas, 1986, 144–145; Porter, 1979, 220–221)

In compliance with McGee and Thomas (1986), the key characteristics of industry's structure are condensed in the idea of entry barriers. A company within a group makes a strategic decision which cannot be duplicated by members of other strategic groups without remarkable elapsed time, substantial costs or insecurity about the decision's outcomes. These group-specific entry barriers, called mobility barriers, provide advantages to some companies over others. The mobility barriers can be denoted alike conventional entry barriers; as Caves and Porter (1977, 250) state, *"barriers to entry then become specific to the group rather than protecting all firms in the industry equally, and barriers to mobility between groups rest on the same structural features as barriers to entry into any group from outside the industry"*. Porter (1979) suggests the fact entry barriers generalize to mobility barriers provides an explanation why some companies are more profitable than others, and why companies adopt distinct strategies although all the options are not equally successful. (Caves & Porter, 1977, 250; McGee & Thomas, 1986, 150–151; Porter, 1979, 216; Porter, 1980, 132–135)

McGee and Thomas (1986) divide mobility barriers into three broad categories, which are presented in table 7. Market-related strategies, characteristics of supply in the industry and companies specific characteristics correspond to differentiation and cost-based strategies at the business unit level, and to strategy characteristics at the corporate level. (McGee and Thomas, 1986, 151)

Table 7 Sources of mobility barriers (Adapted from McGee & Thomas, 1986, 151)

Market-related strategies	Product line
	User technologies
	Market segmentation
	Distribution channels
	Brand names
	Geographic coverage
	Selling systems
Industry supply characteristics	Economies of scale: - production - marketing - administration
	Manufacturing processes
	R & D capability
	Marketing and distribution systems
Characteristics of firms	Ownership
	Organization structure
	Control systems
	Management skills
	Boundaries of firms - diversification - vertical integration
	Firm size
	Relationships with influence groups

Market-related strategies include product line, technologies typifying the product, geographical coverage of the market and the segments served, the distribution channels, product differentiation and branding as a whole and the selling systems, including the relationships with the buyers. McGee and Thomas (1986) classify into industry supply characteristics the economies of scale arising from production, marketing and administration, manufacturing processes, including technological capability, R & D expenditure and marketing and distribution systems. The third category is comprised of firm characteristics, including the ownership and organizational structures, management skills, control systems, the size of the firm, diversification and vertical integration of firm's boundaries and the relationship with the influence groups. (McGee & Thomas, 1986, 151–153)

Several studies (see Mahon & Murray, 1981; Porter, 1980; Smith & Grimm, 1987; Smith & Grimm, 1991) have noted companies should change the strategy used when the environment changes. Especially the transition from regulated to deregulated environment is a significant change for a company. Smith and Grimm (1987) examined the strategic management of US railways in 1984 by a mail survey which was sent to all members of National Industrial Transportation League's railway transportation

committee, altogether 180 railway shippers. The committee was seen as a good sample, because it consisted of directors of transportation and distribution of the largest customers' in railway industry. Among the customers were such companies as Ford Motor Company and Union Carbide. 58 per cent of the committee responded, providing totally 245 evaluations on 27 railways. The sampling accounted for 90 per cent of total US railway revenue and included all the largest companies. In the questionnaire the experts had to evaluate the relative performance of each railway on a scale of one to five both before and after the deregulation. The researchers classified the answers to five different clusters, presented in table 8. (Smith & Grimm, 1987, 369–372)

Table 8 *Five railway strategies by Smith and Grimm (Adapted from Smith & Grimm, 1987, 369 – 372)*

Type	**Strategy name**	**Highest scores in…**
Focused	Leadership strategy	Marketing, service quality and low prices
Focused	Innovation strategy	Innovation dimension
Focused	Quality differentiation strategy	Product dependability and customer service
Unfocused	Contingency strategy	middle on all dimensions
Unfocused	Unfocused follower strategy	low scores on all dimensions

The first three strategies are focused, signifying they stand for a focus on one or more strategic dimensions. The two latter strategies do not concentrate on any dimensions but scores alike to all variables. Companies in the first cluster received high scores on marketing, service quality and low prices; they concentrated on all three dimensions. Researcher's named the first cluster leadership strategy. The second cluster concentrated more on innovation than other dimensions, especially in customer service and relations. The cluster was named innovation strategy. The last focused group concentrated on product dependability and customer service, named quality differentiation strategy. The two latter strategies were grouped to unfocused strategies. The fourth group scored middle in all dimensions, enabling companies in this group to move in whatever direction was seen the most profitable while environment was changing. Therefore, a name contingency strategy was given. The last group gained low result in all dimensions, without having a clear attention to any indicators. The strategy was named unfocused follower strategy –although Smith and Grimm (1987) argued if it can be called a strategy at all. (Smith & Grimm, 1987)

Smith's and Grimm's (1987) main finding was that only few firms followed focused strategies in regulated environment. Although several companies made strategic changes in order to react to deregulation, there was still seen a lack of strategic focus when compared to other deregulated industries. Earlier deregulation, seven companies out of the sample of 27 used focused strategies; eight companies pursued them after the deregulation process. Overall, 57 per cent of studied companies (15 firms out of 27) changed the strategy. Smith and Grimm (1987) concluded the changes do not occur rapidly: a long time is needed in order to adjust to new market situation after decades of stable regulation. The study also revealed the companies which did change the strategies outperformed. Smith and Grimm (1987) discovered the most profitable change was

from unfocused follower strategy to an innovation strategy. This finding supported the aim of the deregulation, which was to encourage innovation. In the second research, Smith and Grimm (1991) revealed that managers' age and years of industry service had a straight correlation with strategic change. Especially age seemed to have a significant influence: the managers' average age in companies which did not change the strategy was 52.7 years and in companies which did change the strategy 50.4 years, giving $t = 3.45$ and $p = 0.001$. (Smith & Grimm, 1987; Smith & Grimm, 1991)

While strategic groups are discovered inside a market, strategic alliances provide an important way of internationalization for transport companies. Building strategic alliances has also been seen as a respectable way to enter the foreign markets. Therefore transport companies have a history of developing, forming and even call off alliances with other transport companies. The changed environments, due to deregulations and harmonization, have changed the conditions. In order to increase the internationalization, transport companies have strengthened the already existing alliances and formed new alliances. Companies want to form more integrated network for transport. However, finding a suitable partner is a hard job to do. For many companies the know-how and intangible assets are the core resource. Therefore a selection of a trustworthy partner is a crucial for company's survival. (Hertz, 1996, Lee et al., 2000)

3.4.2 Porter's five forces

Company's performance on the market can be evaluated from the point of view of industry. According to Porter (1980), industry structure determines the strategies prospectively available to the company. Especially forces outside the industry are significant: because all operators of a certain industry are affected by the same forces, the key question is to understand how different companies deal with them. If company operates in an industry which faces competition, all factors affecting are originated from the economic structure. This affects on the behavior of competitors. Porter (1980) states the condition of competition depends on five basic competitive forces: entry, threat of substitution, bargaining power of buyers, bargaining power of suppliers and rivalry among current competitors. These forces reflect the fact competition is not only between the downright competing companies; on the contrary all players, including customers, suppliers, substitutes and new entrants must be noticed as competitors. (Porter, 1980, 3–7) Figure 10 illustrates the five forces model adapted to railway freight market.

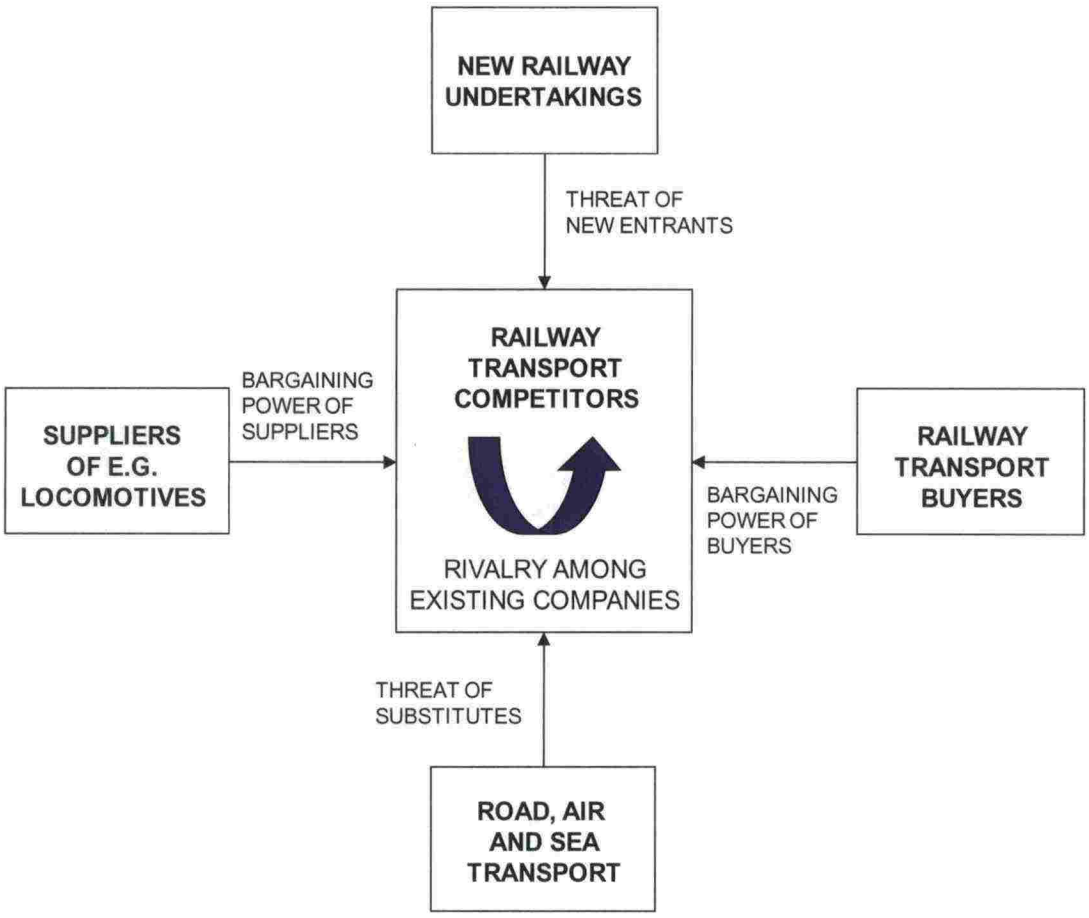

Figure 10 Porter's five forces adapted to railway freight transport (Adapted from Mäkitalo, 2007; Porter, 1980)

The competition in an industry refers to operators providing similar products or services. As Mäkitalo (2007) noted, the threat of new entrant is one of the central competitive forces. The strength of threat depends on the market entry barriers and existing competitors' retaliation towards new entrants. According to Porter (1980), the entry deterring price, properties of entry barriers and experience and scale as entry barriers are also dimensions affecting on threat of entry. If entry barriers are high and/or new entrant encounter strong reprisal from companies operating in the industry, the threat of entry is low. (Järnvägsstyrelsen; 2007; Mäkitalo, 2007; Porter, 1980, 7, 14–15) Porter categorizes market entry barriers to seven major sources, which are presented in table 9.

Table 9 Barriers to entry (Porter, 1980, p. 7–13)

Barrier to entry	**Definition**	**Example**
Economies of scale	Cost of producing an additional unit of a product decreases as the volume of output increases	Lower input costs (buying large amount of product in a cheaper price)
Product differentiation	Companies have competitive advantage which differentiates them from competitors	Strong brand, loyal customers, product differences
Capital requirements	Need to invest large financial resources	Production facilities, machinery, inventories
Switching costs	One-time costs facing the buyer when switching from one supplier to another	Employee training costs, machinery, technical help
Access to distribution channels	Need to secure distribution for products	Space in supermarket's shelf
Cost disadvantages independent of scale	Existing companies may have cost advantages not replicable by potential entrants	Proprietary product technology, favourable locations
Government policy	Government can limit or close entry to certain markets by various ways	Licensing requirements, pollution standards

Rivalry among existing competitors occurs when companies either feel the pressure or see opportunities to improve the market position. Mainly used tactics include price competition, advertising battles, product introductions or increased customer service. According to Porter (1980) competitors are mutually dependent, signifying counterparts' actions on the market have noticeable effects on its competitors. Additional factors affecting on the rivalry among existing competitors are high fixed costs, diverse competitors and slow industry growth, to name few. Threat of substitutes refers to other competitive industries, which offer alternative ways to perform the same function. The price-performance attractiveness between the substitutes determines the industry's profits. (Porter, 1980, 17–24; Mäkitalo, 2007)

Generally bargaining power is the ability to influence on prices. Buyers are the actors who create the demand for a certain product or service; suppliers are the companies providing all needed sources for creating a certain product or service. The buyers and suppliers pursue to maximize the profits by influencing on markets in several ways. Buyers can force down prices, bargain for higher quality or more services and arrange competitors against each other. According to Porter (1980), buyer group is powerful if

- It purchases large volumes relative to vendor's sales
- The products it purchases represent a remarkable fragment of the buyer's costs
- The products purchased are standard or undifferentiated
- It faces only few switching costs
- Industry's product or service does not affect on the quality of the buyer's products or services

- The buyer has full information
  (Porter, 1980, 24–27)

Porter (1980) states the conditions turning suppliers powerful tend to reflect the factors making buyers powerful. Therefore, supplier group is powerful if

- it is dominated by a few companies and is more concentrated than the industry it sells to
- the supplier sells to numerous industries, it is not dependent on the certain industry
- the suppliers' product has an important input to buyer's business
- the supplier's products are differentiated
  (Porter, 1980, 27–29)

Many researches (see Casaca & Marlow, 2007, 307; Järnvägsstyrelsen, 2007; Mäkitalo, 2007) have used Porter's five forces when analyzing the transport markets. According to Järnvägsstyrelsen (2007), in Swedish market exist "gentlemanly competition". Mäkitalo (2007) stated Porter's five forces model is ideal for characterizing the railway markets. The model is suitable for railway freight market, because buyers have a significant influence on the railway freight market and they create competition within the industry. (Mäkitalo, 2007)

4 TRANSPORT INFRASTRUCTURE

Benson et al. (1994, 1) define transport as *"that part of economic activity which is concerned with increasing human satisfaction by changing the geographic position of goods or people"*. Raw materials are taken to places where the most cost-effective manufacturing is available, or finished goods to places where most of the consumers are located. As Benson et al. (1994) noted, *"transport creates the utility of space"*.

The term transport system includes functions as transport infrastructure and traffic management. Actually, traffic management is seen as part of transport infrastructure, together with transport networks, terminals and control systems. Different regulations, organizations and transport modes are needed for traffic management. (Ministry of Transport and Communications, 2002)

The main modes of transport are road, railway, sea, air and pipeline (Benton et al., 1994). According to Hibbs (2003, 90), transport market is dominated by road transport. Road haulage's essential advantage when compared to railway or sea is door-to-door services, which enables customers' to receive the delivery to the certain terminal, warehouse or other fixed location. If the transport journey is over 320 km, the advantages of railway transport (high speed and low cost) exceed the disadvantages of delays occurred due to terminal locations. (Benton et al., 1994) Additionally, the rail network is shorter than road network.

Table 10 describes the rail network lengths in countries concerned. In addition to network owned and maintained by the main Infrastructure Managers, all countries in question have privately owned and maintained private sidings. The figure in Sweden is 1157 km and in Poland 906 km. In Finland the private sidings covers only dozen km. (RHK, 2009; Stenbacka, H 2009, pers. comm., 11 May; Wrobel, J 2009, pers. comm., 12 May)

Table 10 Network length in countries concerned (Banverket, 2009; PKP PLK, 2009; RHK, 2009)

	Network length / km
Finland	5794
Poland	19201
Sweden	12821

Sea transport is mainly used for bulk cargo, such as coal, iron, steel products, chemicals or timber, containers or cars. Shipping lines have various types of vessels: car carriers, container or bulk vessels, tankers or LNG, vessels specialized in transporting liquefied natural gas. In addition to long seaways, short-sea traffic covers the smaller areas. For example, there is an active short sea service connecting countries like Finland, Sweden, Russia and Estonia with Germany and Netherlands. ("K" Line, 2009) Air transports' advantage is speed. However, due to high costs and exiguous space, air transport has qualified as a transport mode for expensive, fragile or small goods. Pipeline is a unique method of transport, due to the fact it combines the way, the unit of carriage and the

propulsion unit. Only the terminus (for example a tank farm) is separate. (Benton et al., 1994)

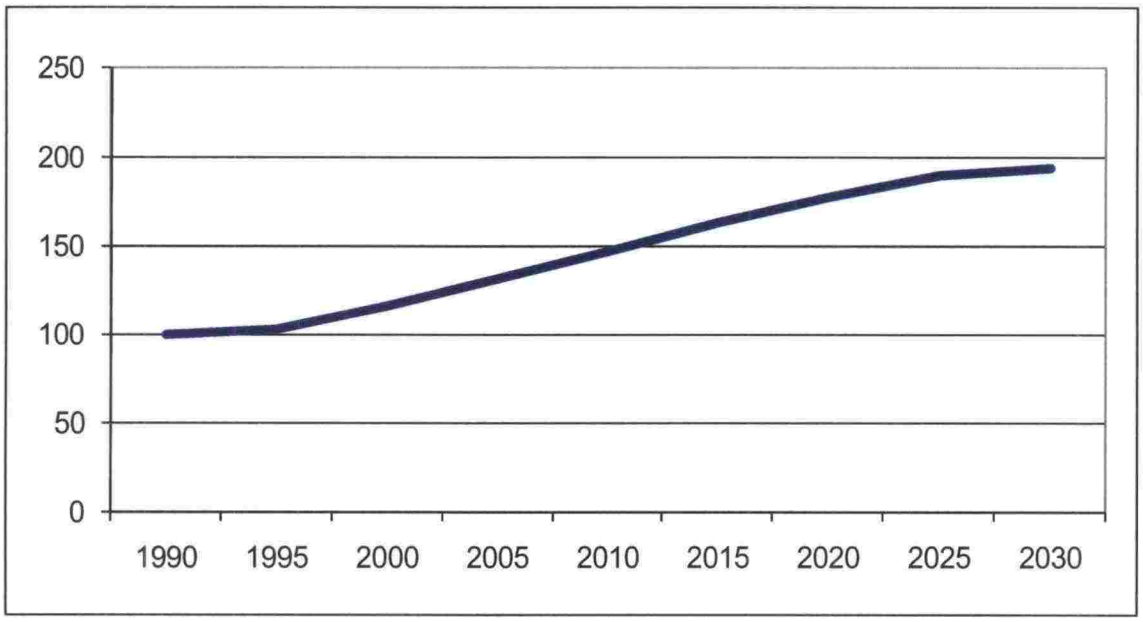

Figure 11 The assumed transport activity growth during 1990–2030, index 100 = 1990 (European Union, 2007)

Figure 11 illustrates the assumed transport activity growth in railway freight traffic in Europe. According to EU's prediction, the utilization of railway as a transport mode will increase annually. There is a need for more environmentally friendly option, which does not obstruct the traffic. Therefore the railway is a perfect solution. According to EU (2007), the intention is to support the railway transport. Actually, this objective was put into action already in 1992, when the first White Paper was published. (The White Paper, 1992)

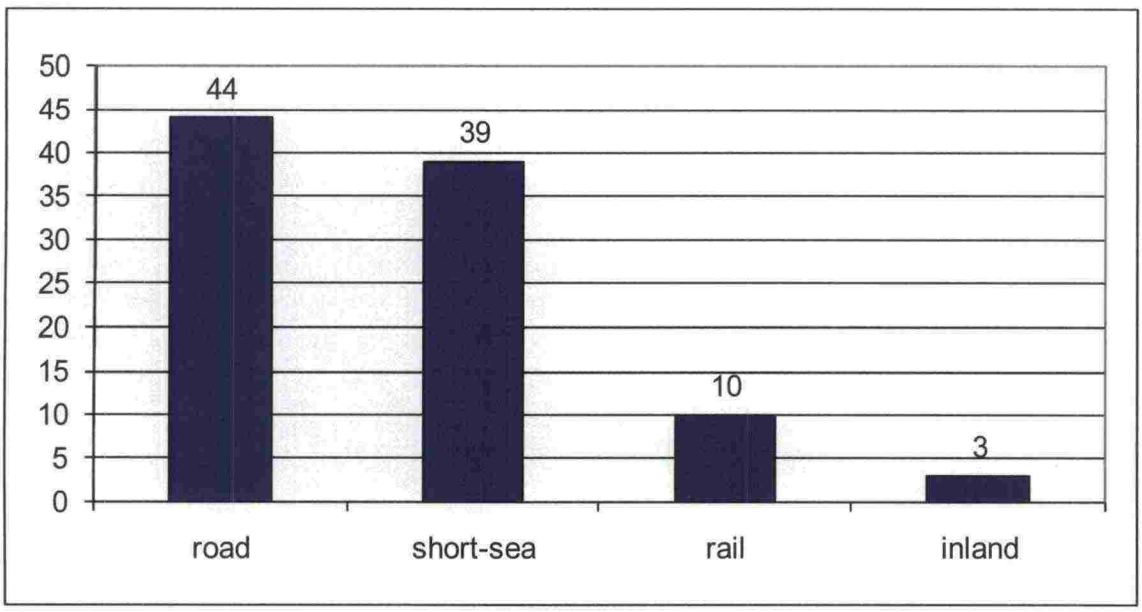

Figure 12 The use of different transport modes (European Union, 2008)

Figure 12 describes the percentual utilization of different transport modes in European Union member states in 2008. According to the research, 44 per cent of goods are transported by road, 39 per cent by short-sea shipping, 10 per cent by railway and 3 per cent by inland waterways. (European Union, 2008)

4.1 Sweden

In Sweden, the main transport mode is road. According to EuroStat (2009), in 2007 road transport's market share was 63.6 per cent. Same study stated railway cover the rest, 36.4 per cent (EuroStat, 2009).

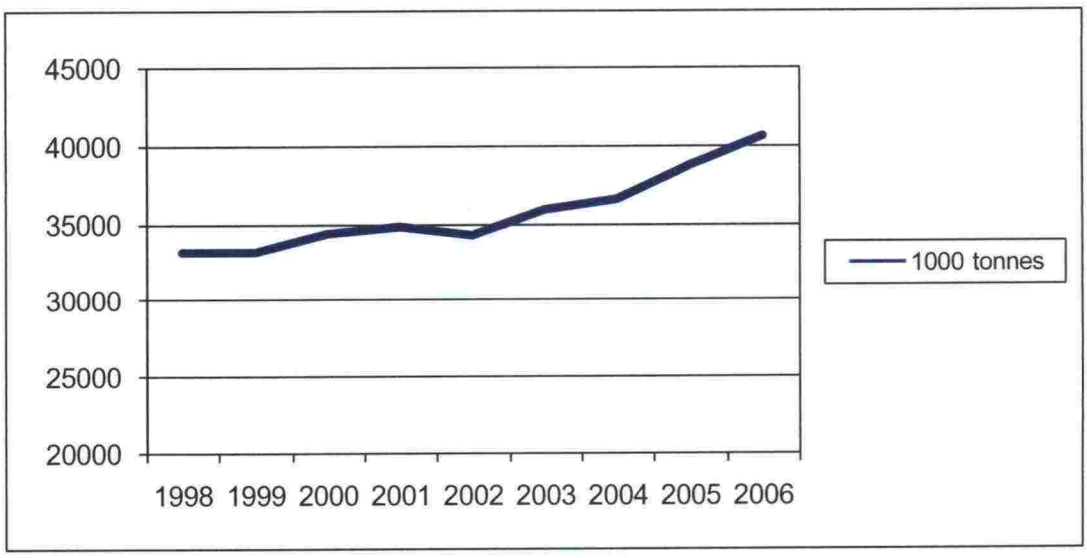

Figure 13 Goods transported by railway / Sweden (SIKA Institute, 2008)

Railway has increased the market share annually (see figure 13). In 2007, railway transport amounted to 23.3 billion tonne kilometres, which is the highest result ever achieved. The increase compared to year 2006 was 1.0 billion tonne kilometre. (SIKA Institute, 2008)

4.2 Poland

According to The Economist Intelligence Unit (EIU) country profile 2007, the Polish railway infrastructure needs substantial restructuring. However, railway is not the only infrastructural system which is in bad shape. According to the EIU (2007), Poland's road network is one of the weakest aspects when reckon with the infrastructure. However, road transport continues to increase its market share.

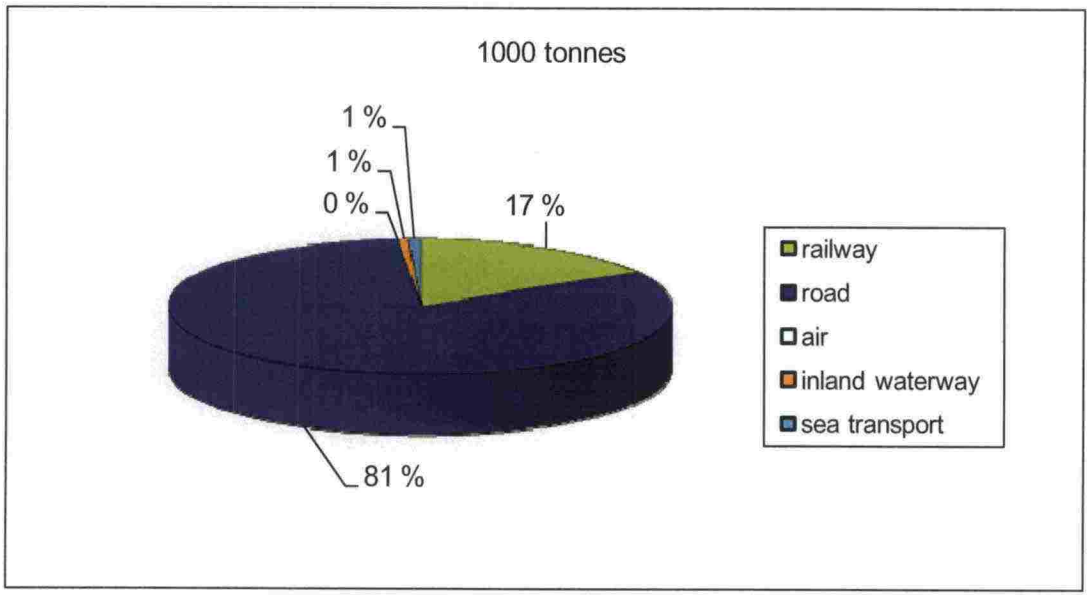

Figure 14 Transported goods by mode of transport in Poland 2007 (Central Statistical Office, 2008)

Figure 14 illustrates the split between transported goods in 2007. Road transport is the superior market leader with 81 per cent, following by railway, 17 per cent. Both Inland waterway and sea transport cover one per cent of whole transport amount. As figure states, cargo volumes transported by air are minor (46 000 tonnes). (Central Statistical Office, 2008)

United Nations Economic Commission for Europe (UNECE) stated by 2020 a strong increase in transport demand is expected. UNECE (2009) predicts 1.6–2.1 per cent increase for both railway and road transport. According to UNECE (2009), railway transports' main obstacles are

- Need to encounter high environmental standards
- Defective financial resources for investment projects
- Limited existing potential of firms focused on railway designing and building
- Need to implement several works in within a limited period of time
- Need for advanced innovations and technologies, which are not available so far

However, the infrastructure is repaired and there is a hope for better future. One stroke of luck was the Union of European Football Associations (UEFA) decision to hold the Euro2012 tournament in Poland and Ukraine. This provides further incentives for the government to improve both road and rail networks in the near future. (The UIC, 2007)

4.3 Finland

The main transport mode in Finland is road; in 2007 road transport covered 73.9 per cent of whole transport traffic. Finland has some minor inland waterway transport, which counts 0.3 per cent. Therefore, in 2007 railway transport market share was 25.9 per cent. (EuroStat, 2009)

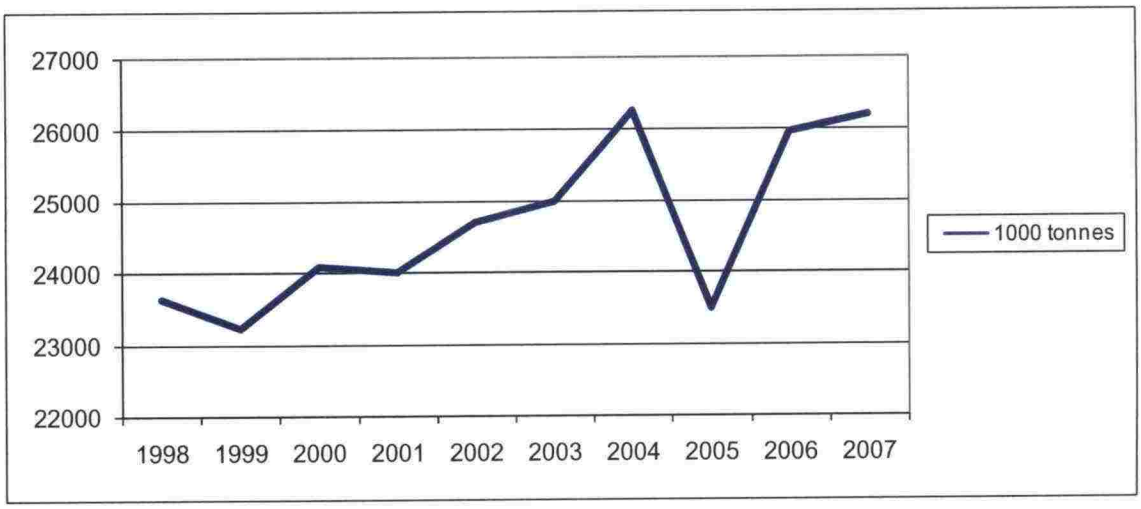

Figure 15 Goods transported by railway in Finland, excluding Russian traffic (RHK, 2008)

Figure 15 illustrates the railway transport volumes in Finland (excluding the Russian traffic) during 1998–2007. As visible, the last ten years railway transport has increased its market share. The decline in 2005 can be explained by the strike in paper mills during summer 2005, which basically stopped the whole paper transport in Finland. In 2008 VR Cargo transported in Finland 25.5 million tonnes, stating 2.7 per cent's decrease compared to year 2007. In 2008 the total railway freight traffic (including traffic to/ from Russia and transit traffic) volume exceeded 41 million tonnes, increasing 4.1 per cent from year 2007. (TransPress, 2009)

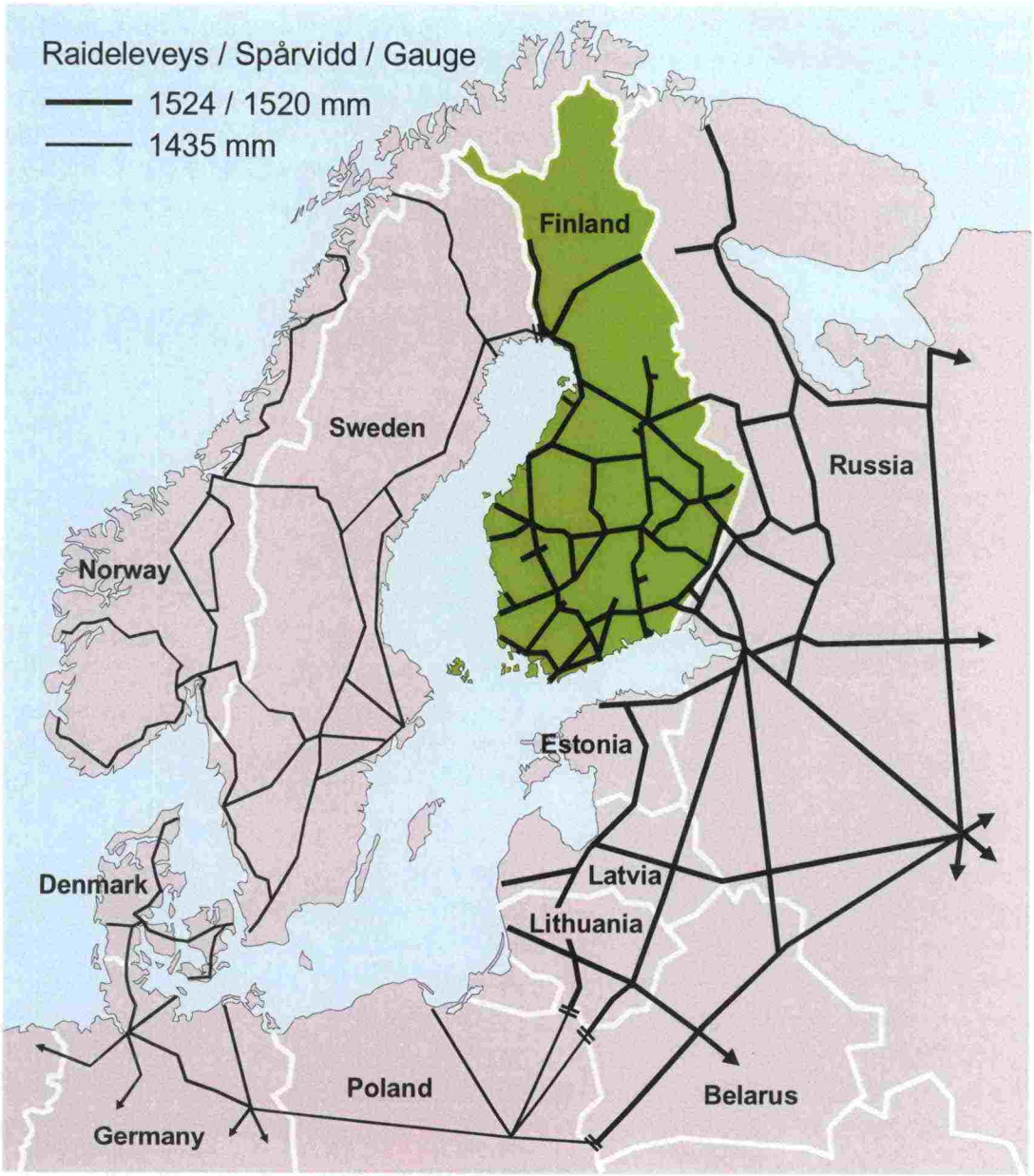

Figure 16 Gauge in Northern Europe (RHK, 2006)

One of Finland's national peculiarities is the gauge (see figure 16). Eastern countries, including Finland, Russia, Estonia, Lithuania, Latvia and Belorussia are using the wide gauge, 1524/1520 mm. The other width used is 1435 mm which is used in Scandinavia (Denmark, Norway and Sweden) and in main Europe, including Poland. Because Finland's geographical location can be counted as an island, the only possible international railway traffic is in North-Finland with Sweden and Norway or in East with Russia. (Finnish Rail Administration, 2006; Hilletofth et al., 2007) Russia and Finland are utilizing this possibility: in 2008 transported volume exceeded 11 million tonnes, stating 12.9 per cent's increase. Transit traffic's amount was 4.8 million tonnes, increasing 35.4 per cent. (TransPress, 2009) At the moment the eastern border is sheltered from competition, signifying only VR Cargo and the Russian Railways (Российские железные дороги, RZD) can practice the transit traffic. However, the Russian locomotives are not allowed to operate in Finland, the locomotives are changed

at the border. Additionally, Russian wagons needs to fulfill strict regulations in order to get the permit to enter the Finnish rail network. However, the situation might change in near future, as the agreement is to be reformed in the next few years. (Iikkanen, 2007) If the transit traffic is deregulated, several Russian railway undertakings might enter the Finnish market. The situation is interesting for the Finnish Rail Administration: in order to be ready for future challenges, it is vital to understand how the other markets encountered the situation after the liberalization.

5 RESEARCH ENVIRONMENT AND DATA GATHERING

5.1 Research approach

At the moment there are 17 railway undertakings that have a licence to practice railway freight traffic in Sweden. Polish markets have more licensed undertakings: altogether over 90 have the license, 49 are counted as active railway undertakings. Because the research's objective was to gather genuine information from the experts, a half-structured theme interview was chosen as an interview type. According to Hirsjärvi et al. (2004), by a test-interview themes' adequacy can be confirmed and interview's duration can be checked.

Although all researchers avoid making mistakes, the results' reliability and validity might vary greatly. Therefore in every conducted research the reliability should be questioned. According to Hirsjärvi et al. (2004), reliability means the repeatability of the results. Basically this means if the same study is duplicated, there are no remarkable discrepancies between the results. On the other hand, validity signifies the indicators or research method's ability to examine exactly the intended factors. Occasionally the chosen research methods do not match the requirements to measure the intended factors. For example, there might be misunderstanding in questions and answers, especially if language barriers occur. (Hirsjärvi et al., 2004)

Research reliability was confirmed by recording all interviews. This ascertained the availability of repetition. Questionnaire's validity was checked by organizing a test-interview with a company that intends to enter the Finnish railway freight market in 2010. According to interviewee's comments, few questions were added to the questionnaire.

Lappeenranta University of Technology's Kouvola Unit had gathered a list of railway undertakings in Poland and Sweden for their previous researches. The same lists were used; contact persons and railway undertaking details were re-checked. All railway undertakings were contacted by sending a cover letter and information letter (see appendix 1 and 2) by e-mail. Polish railway undertakings were contacted in English, Swedish railway undertakings both Swedish and English. E-mail was sent to 16 Swedish railway undertakings (appendix 8). Due to number of railway undertakings on the Polish market, an extensive sample was chosen for the research. Altogether 18 railway undertakings were contacted (appendix 9), including representatives from all different types of railway undertakings: small undertakings concentrating on transporting one product and large undertakings operating country widely. Hereby the research's validity was confirmed. A reminder was sent three days after the original e-mail to railway undertakings that had not commented the participation. Railway undertakings were contacted by phone one week after the first contact. If the person in charge had not seen the information letter, it was e-mailed again. This ensured the railway undertakings had time to familiarize with the research. All interviews were agreed by e-mail. Around two weeks before a meeting questionnaire (appendix 3 and 4) was sent to interviewee, in order to give railway undertakings some time to prepare. One or two days before a meeting a confirmation e-mail was sent, making sure persons in charge remembered the agreed interview.

5.2 Theme interview

Theme interview was introduced first time in 1956 by Merton, Fiske and Kendall in their book "The Focused Interview". According to authors (Merton et al., 1956: 3-4), theme interview has following characteristics: 1) interviewees have experienced or are well aware of certain phenomena, 2) researcher has preliminary knowledge about the subject, 3) a framework for interview is settled and 4) interviewee has a subjective experience about the topics concerned. Starting from 1980s theme interview has been the mostly used interview method in business economics; often it is seen as synonym for qualitative research (Koskinen et al., 2005, 105). Theme interview focuses on certain themes; it is a semi-structured interview method, which is placed between a form interview and an open interview. The interview proceeds in compliance with themes without setting significance on single questions. There is no correct order to proceed: the subject discussed transfers to next theme. In a good theme interview researcher can deepen the conversation by concentrating on subjects related to the interviewee. Additional questions can be added. Although, the exact form and order of the questions is not important, theme interview is not as free as in depth-interview (Hirsjärvi & Hurme, 2001: 47–48; 124).

The research has four main themes. All themes are divided into sub-themes in chronological order. Questionnaire has more sub-themes than normally, due to extend of the research and subjects researched. The four main themes follow the research's structure: company background represents the railway undertaking and market entry surveys the market entry process. Infrastructure concentrates on the country's transport infrastructure and the role of European Union seeks answers to railway undertakings' attitude towards the European Union legislation. Research main theme is market entry, which is seen with five sub-themes. Sub-themes are divided in chronological order, starting from time before entering the markets all the way till future prospects. Finally last sub-theme concentrates on railway markets' special characteristics, for example traction power.

Theme interview was used in order to discover key problems, barriers and possibilities when entering a railway market after the liberalization process. The intention was to evaluate the results by three means: by comparing the outcomes inside a country, by comparing the outcomes between two countries and by evaluating if railway undertaking's size influenced the results. The goal was to compare the results with earlier studies, and see if primary data confirms the earlier results from secondary data.

5.3 Collecting the data

Persons selected for the interviews were railway market experts: either in railway undertakings or Infrastructure Managers. Most of the interviewees had a long history in railway industry: persons who had entered the markets recently had decade's history in logistics. Altogether were interviewed seven railway undertakings (nine persons) from Sweden and eight railway undertakings (nine persons) from Poland. Additionally one Lithuanian company was interviewed in order to create a view concerning the cooperation between Lithuanian and Polish operators. Interviews were arranged by e-mail and conducted in the interviewee's offices except two, which were conducted at a

restaurant and in a hotel. All interviews were done during normal office hours, except one interview which was made during the weekend. One interview was done totally in Swedish; in three interviews some Swedish were used. In three interviews an interpreter was present. Otherwise, all interviews were done in English.

Interviewees were told beforehand interview takes one to two hours. Generally duration varied from 1.5 hours to two hours. The length varied a lot in Poland: the shortest interview was 34 minutes; the longest took two hours 40 minutes. Before starting the interviews, research's background was described and the interviewee's role was clarified. Permissions to record the interviews were asked; it was received from 17 interviewees, one interviewee prohibited the recording. Table 11 and 12 presents the time and date and the duration of the interviews. The list of interviewees is in Appendix 5.

Table 11 Interviews in Sweden: time, date and duration

	Time and date	**Duration (minutes)**
Person 1	16.2.2009 at 13.00	78
Person 2	19.2.2009 at 10.00	105
Person 3 + 4	20.2.2009 at 12.30	110
Person 5	23.2.2009 at 9.00	121
Person 6	24.2.2009 at 10.00	129
Person 7	25.2.2009 at 12.00	103
Person 8	26.2.2009 at 13.00	102

In addition to interviews, one railway undertaking sent further information by e-mail.

Table 12 Interviews in Poland: time, date and duration

	Time and date	**Duration (minutes)**
Person 1	16.3.2009 at 14.00	34
Person 2	17.3.2009 at 12.00	95
Person 3	18.3.2009 at 8.00	64
Person 4	18.3.2009 at 13.15	106
Person 5	20.3.2009 at 10.45	157
Person 6	22.3.2009 at 08.30	63
Person 7	23.3.2009 at 14.00	82
Person 8	24.3.2009 at 10.00	96
Person 9 + 10	25.3.2009 at 10.00	83

According to Koskinen et al. (2005), it must be considered carefully when the recordings should be transcribed. Transcribing can be divided into five levels: first level concentrates on receiving a general idea about the topic. Normally French lines are used. On second level some quotations are collected but interview is not transcribed from word to word than in level three. Level four differentiates entire situation: laugh,

silent speech and breaks. On the fifth level interview is videotaped and body language is studied. (Koskinen et al., 2005: 319–324) In this research level two transcribing was used: interview was not written from word-to-word but some quotations and comments were collected. During an interview a short memo was written, which was complemented by gathering data from the recordings. The summaries were sent to interviewees for checking: this ensured the interviewee had given the correct information and researcher had understood the information in an intended way.

5.4 Methods used to analyze the research data

There are several ways to analyze the gathered research data. According to Strauss & Corbin (1990, 13), *"analysis is the interplay between researchers and data"*. Hirsjärvi et al. (2004), building on Eskola (1975) state the research problem and analysis are often congruent. Therefore, different actions are hard to perceive. In research, data's analysis, interpretation and drawing conclusions are the main parts: this is the main target, the reason why research is conducted. (Hirsjärvi et al., 2004, 209)

Before the data can be analyzed, some preliminary work is needed. The process can be divided into three sub-groups: 1. research data's verification, 2. research data's augmentation and 3. research data's arranging. Research data's verification ascertains the collected data is correct and all needed data is available. If there is a lack of information and the data needs augmentation, researcher can contact the interviewees again in order to gather the needed information. Before data is ready for analyzing, it needs to be arranged. Research's nature (is the method used qualitative or quantitative) affects on the process: arranging qualitative data is time-consuming task, whereas quantitative data can be organized effortlessly. (Hirsjärvi et al., 2004, 209–210)

Krippendorff (2004) states content analysis belongs to the most important research techniques. It often refers to analyzing texts, for example interview transcripts; the main intention is to understand what the gathered information means for people. According to Patton (2002), content analysis is used to indicate any qualitative data reduction, which main intention is to identify the core consistencies. For example case studies can be content analyzed. (Patton, 2002)

Content analysis can either be inductive or deductive. Inductive analysis discerns categories or themes in the data. The main difference to deductive analysis is that in inductive approach, findings heave into sight of the data, whereas in deductive analysis the data is analyzed according to existent framework. Often qualitative analysis is inductive by nature. (Krippendorff, 2004; Patton, 2002, 453)

This research utilizes inductive analysis. By using semi-structured theme interview, topics were categorized already in the early stage of the research. Research's main intention is to carefully study the topics which emerge out from the data. Additionally, this research tries to deliver novel data by investigating how respondents experienced the deregulation process.

6 EMPIRICAL PART

6.1 Sweden

In Sweden were interviewed altogether seven operators, six railway undertakings and the Swedish Rail Administration, Banverket. Due to operators' different nature, only railway undertakings are included in the table below. Banverket's results are discussed separately.

Table 13 represents the main findings from Sweden. All thematic entities, divided into groups according to theme interview's model, are discussed more deeply later on in this chapter.

Table 13 Main findings / Sweden

Measure	Company A	Company B	Company C	Company D	Company E	Company F
Knowledge about railway market before entering	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Why company entered railway industry?	Customer	Customer	Customer	Customer	Customer	Old SJ
Rolling stock - where gathered when started the business?	SJ old	Acquisition	SJ old	SJ old	2nd hand	SJ old
Personnel's background	SJ	Acquired + SJ	SJ	SJ	GC (SJ) + new	SJ
Main market barriers	Rolling stock Investments	Rail capacity Investments Bureaucracy	Bureaucracy Locomotives	Find customer Locomotives Stations Bureaucracy	Locomotives Bureaucracy Capacity	Investments Bureaucracy
Problems and difficulties faced when entered the markets	No	No	No	XXX	Bureaucracy	XXX
Positive matters faced when entered the markets	Costs / capacity	Demand	Demand	XXX	Positive attitude	XXX
Company's strengths	only 1 customer	Strong financial background	Flexibility Cooperation	Personnel Foundation	Brand, innovative locomotive fleet	Network Skills, knowledge
Company's weaknesses	only 1 customer	Old rolling stock	Money	Size Money	Door-to-door Few customers	Age and size -> Time to market!
Cooperation with other operators?	Some	Yes	Yes	Yes	No	Some
Intermodal competition	No	Yes	Yes	Yes	Yes	Yes
Intramodal competition	No	Yes	No	No	Yes	Yes
Price level	XXX	Decreased	Stable	Stable	Stable	Stable
Access charge	Low	Low	Low	Low	Low	Low

6.1.1 Market entry

Several researchers (see e.g. Kotler, 1988; Makadok, 1998; Pehrsson, 2004) have stated the entry timing is important. Railway undertaking gaining the first mover advantage after the liberalization in Sweden was the old monopoly undertaking, which was able to continue the services like previously. However, interviewee saw situation positively; *"timing to be named XXX was excellent"*. As a first mover, the railway undertaking was able to build a strong brand.

All interviewed railway undertakings were established within ten years' time period, 1994–2004. This is explained by the fact that in 1994 the old governmental organization, Statens Järnvägar (SJ) decided to discontinue unprofitable short-lines and gave an opportunity for new railway undertakings to take over the lines in question. Figure 17 describes the background of the interviewed undertakings before entering the railway freight market. Four railway undertakings have straight connection to SJ: one of the case undertakings is the old SJ Freight, while three railway undertakings were start-ups starting to operate old SJ regional lines. In addition, one start-up entered the markets as late entrant, having history in shipping. One railway undertaking entered the market via vertical integration; before acquiring an old railway operator, it had a history in railway maintenance.

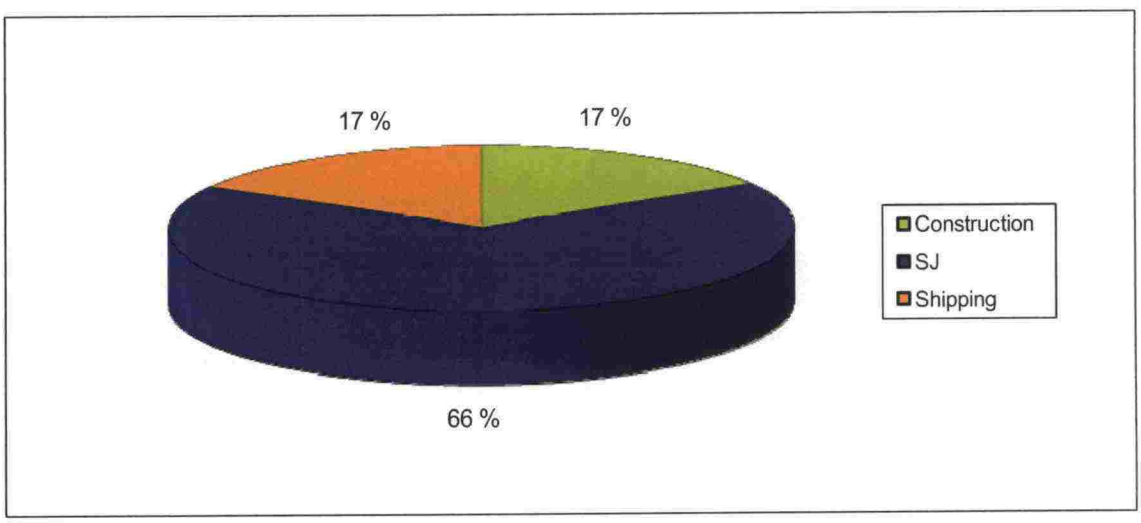

Figure 17 Background before entering railway freight market / Sweden

Because 66 per cent of interviewed railway undertakings had roots on railway market, they were well aware of external and internal factors affecting on entry mode's selection. Therefore, the personnel had strong market experience, which Koch (2001) noted as especially important factor.

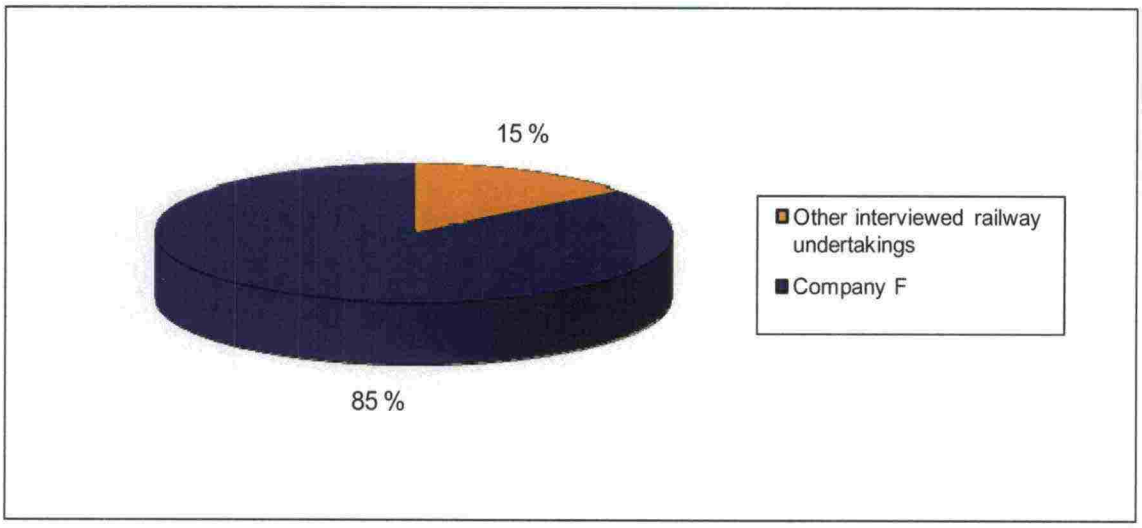

Figure 18 Turnover / market leader versus other railway undertakings / Sweden

It is recognizably outstanding that one railway undertaking has monopoly position. Figure 18 compares the leader's turnover with other interviewed railway undertakings, including five actors. Same trend is visible in the amount of personnel; market leader has 87 per cent of whole market's employees; other railway undertakings' share is 13 per cent.

As stated in several studies (Alexandersson et al., 2000; Järnvägstyrelsen, 2007), in addition to monopoly holder there are few bigger railway undertakings and dozen small railway undertakings. This research's finding supports the stated market structure. Figure 19 presents the other railway undertakings' turnover and amount of personnel (excluding the market leader).

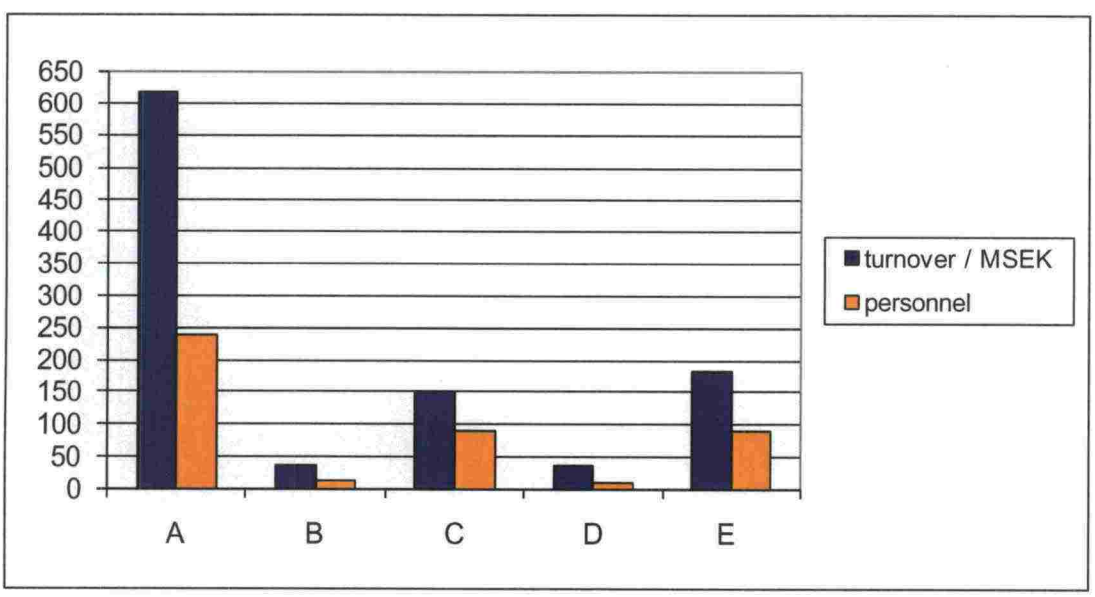

Figure 19 Turnover and personnel / interviewed railway undertakings (excluding market leader) / Sweden

Sampling represents 35.3 per cent of Swedish railway freight market's railway undertakings, and among the market leader there are one larger railway undertaking, two medium-sized undertakings and two small railway undertakings.

Kotler (2000) notes companies can be classified into two types: competitor-oriented and customer-centered. By overseeing customer needs, company can decide which customers' needs are the most important to serve with the possible resources and objectives. (Kotler 2000, 247–249) Five of the interviewed railway undertakings informed the reason to enter the markets was customers' request; this presents 83 per cent of all interviewed undertakings (see figure 20). Although, one railway undertaking did not state directly the reason was the customer, interviewee noted: *"customer is always behind the market entry."*

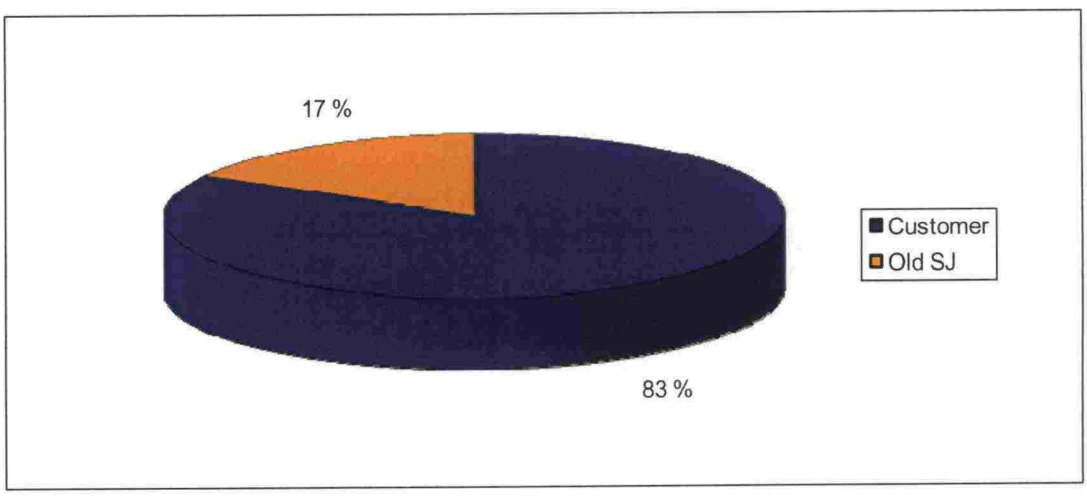

Figure 20 Reason for market entry / Sweden

Table 14 assembles the railway undertakings' strengths and weaknesses. Weaknesses vary between big and small railway undertakings: interestingly, both stated the size is a problem but due to different reasons. Financial background creates problems for small railway undertakings: they cannot acquire many new locomotives. On the other hand, big railway undertaking stated due to the size, market changes faster than they do.

Table 14 Railway undertakings' strengths and weaknesses

STRENGTHS	WEAKNESSES
Strong brand	Undertaking's size
Modern, customer-oriented locomotive fleet	Possibility to invest in big investments
Strong customer focus	Age and size of organization
Experienced, well-educated and flexible personnel	Age of rolling stock
Skills, knowledge and history	Few customers; big risks
Internal network	Hard to offer door-to-door services
Flexibility; innovativeness	
Cooperation	
Strong financial background	
Strong market situation	

Most of the strengths are related to customer focus, flexibility, cooperation and personnel. Because every railway undertaking was able to attract old SJ employees, they had excellent knowledge of railway freight industry before entering the market. Three undertakings started to operate old SJ regional lines, and railway undertakings acquired the old employees. One railway undertaking acquired an operating railway company; therefore personnel were well aware of railway market's peculiarities. One railway undertaking was established by old SJ / Green Cargo employee, and he gathered old colleagues to join the company. When old SJ Freight converted into Green Cargo, all employees became part of the new railway undertaking. However, according to interviews, there are some differences between the undertakings. Few interviewees stated governmentally owned SJ has lower retirement age than private railway undertakings (60 vs. 65) and therefore engine drivers prefer working for governmentally owned undertaking. One interviewee said their strength is a versatile locomotive fleet: drivers are interested in joining the undertaking, because the fleet enables drivers to use all of their skills. According to another interviewee, drivers are looking for open vacancies in small railway undertakings, because they prefer working in a smaller work community. All interviewees emphasized employees are their key asset; without employees there are no transportation and therefore no business.

Table 15 Railway undertakings' comments concerning drivers and personnel in general / Sweden

DRIVERS	PERSONNEL IN GENERAL
Does not have own drivers; rents drivers from Green Cargo!	Easy to attract well educated and motivated workforce
Engine drivers are the most critical resource!	New undertaking employed old SJ personnel
Old SJ drivers and new drivers create a good mix	Market is small; basically all employees have a connection to SJ
Versatile locomotive fleet inspire drivers	No problems in hiring personnel
Generality of employees are engine drivers	Small market, people know each other; mutual background
Liberalization has changed engine drivers' tasks	
Drivers educate themselves annually	

Table 15 assembles the railway undertakings' comments. Engine drivers are seen the most critical resource; in small railway undertakings the generality of employees are engine drivers. According to one interviewee, among ten employees are 6 engine drivers, 2 office workers and 2 employees work at shunting yard. Liberalization has changed engine drivers' tasks. Many operators described there has happened a huge change in work culture: *"nowadays it is important that people have many skills, that they have multi-functional knowledge. This way same person can do many tasks... This increases the cost-efficiency."* According to interviewees, in addition to cost-effectiveness various tasks increase the work-satisfaction.

According to Robertson et al. (2003), the main obstacle for new entrants is finance. Macht & Robinson (2009) & Sørheim (2005) supported the study and concluded the start-ups face considerable challenges in achieving long-term finance. Without a doubt, the biggest financing object in railway is rolling stock. However, because four railway undertakings started to operate in old SJ regional lines, they we able to acquire the rolling stock from SJ. One company acquired old railway undertaking, including the rolling stock; therefore, only one undertaking had to acquire rolling stock. The first months railway undertaking rented locomotives from SJ; rather soon undertaking acquired second hand locomotives.

However, lack of available financing reflects the used locomotive types. Although all railway undertakings use diesel and electric locomotives, small undertakings own relatively more diesel locomotives than larger undertakings (see table 16).

Table 16 Amount of locomotives per railway undertaking / Sweden

	Diesel	Electric
Company A	4	15
Company B	5	2
Company C	24	6
Company D	4	2
Company E	4	25
Company F	150	250

Discrepancy can be explained; smaller railway undertakings do more shunting and operate in narrower areas, which normally are not electrified. Naturally, if undertaking needs only few locomotives, it is more reasonable to invest in diesel than electric locomotives, due to their multi-functional range of usage. However, all undertakings prefer using electric locomotives due to their higher traction power, higher speed and environmentally friendly nature. All interviewees suggested a wish to have more network electrified.

6.1.2 Market entry barriers

According to earlier studies (Brewer, 1996; Ludvigsen & Osland, 2009; Mortimer et al., 2009; Mäkitalo, 2007; Steer Davies Gleave Sweden, 2003) the main barriers to entry are exogenous barriers: acquiring the rolling stock and bureaucracy. However, there are differences between countries. Brewer (1996) noted perceived level of access charges was seen a barrier in UK; in Finland (Mäkitalo, 2007) and Sweden (Steer Davies Gleave Sweden, 2003) researches estimated the difficulty of accessing the services creates a great market entry barrier. Minor barriers to entry concluded long market entry phase, recruiting staff and inadequate rail capacity. Mäkitalo (2007) noticed also endogenous barriers are present in Finland: the actions of the market dominating railway undertaking might complicate the entry process. The main findings concerning Sweden are presented in figure 21.

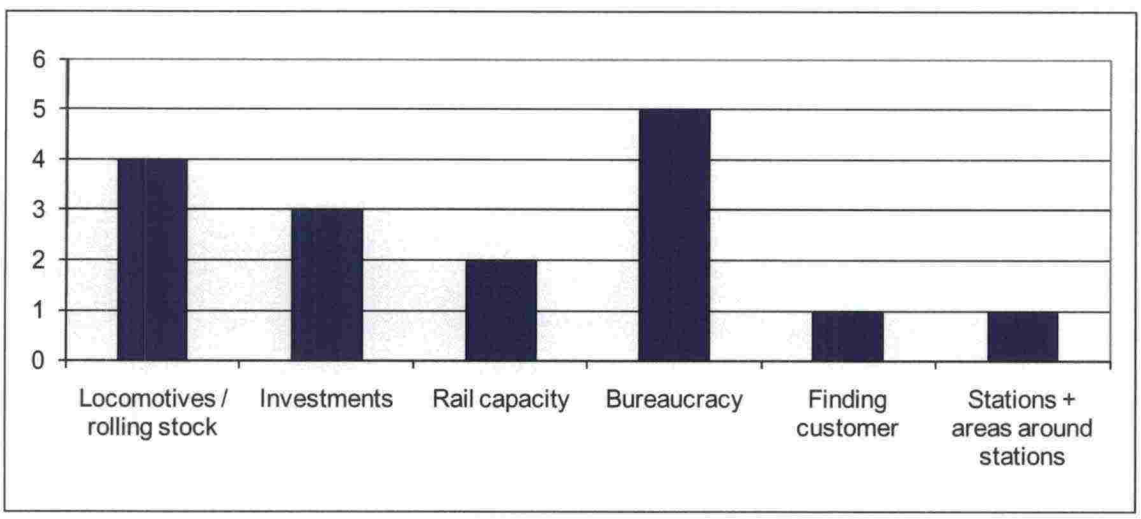

Figure 21 Market entry barriers / Sweden

Due to railway industry's nature, investments are mainly locomotives and wagons. Therefore, these two categories can be conjoined, stating all respondents thought this compound as a barrier. Findings state clearly the main market entry barriers are exogenous: bureaucracy and investments. Five from six interviewees stated bureaucracy as a great market barrier; investments and locomotives / rolling stock were mentioned seven times. Two railway undertakings named rail capacity as a problem; difficulties to find a customer and stations / loading areas were mentioned once. Endogenous barriers were not mentioned.

When comparing the results with earlier studies, both similarities as well discrepancies are noted. Investments acquiring the rolling stock and bureaucracy are estimated high in all studies. Especially bureaucracy unfolded several times in the Swedish interviews. The main discrepancy is in accessing the services, which is stated as a barrier to entry in previous studies (Mäkitalo, 2007; Steer Davies Gleave Sweden, 2003). Additionally, Mäkitalo (2007) described recruiting personnel is a market barrier. According to this research, engaging employees is easy.

6.1.3 Infrastructure

Railway transports' market share continues to decline. According to recent study (SIKA Institute, 2008), during 2002–2007 the decrease was ten per cent. Decline seems to accelerate: volumes transported by railway declined four per cent during 2006 and 2007. Although railway has tried to raise its profile, intermodal competition[8] continues hard. Swedish railway undertakings confirmed the default information. Five interviewees stated there is intermodal competition (see figure 22).

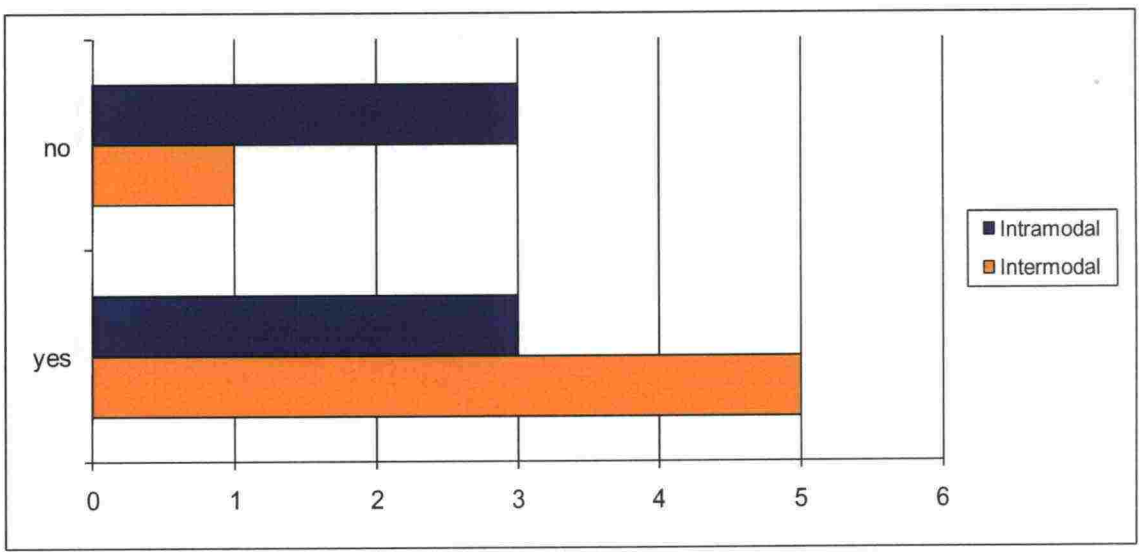

Figure 22 Intermodal / Intramodal competition in Sweden

According to all interviewees, the main competitor is road transport. However, an interviewee stated: *"one driver in a train can have 50 containers behind him, in a truck*

[8] Intermodal competition = competition between transportation modes, for example railway vs. road, railway vs. sea

only two." Therefore railway is hard to beat by other modes. Railway is seen as cost-effective and environmentally friendly transport mode offering quality services for big and heavy products like containers. However, few interviewees noted railway should enhance its market share also in transporting smaller quantities.

Although road transport is seen as major competitor for railway, few interviewees mentioned short-sea transport as a competitor. Interviewees thought railway transport is a competitive option for Sweden due to country's length and the nature of main industries (steel, metal, wood, timber, paper). However, in order to compete more aggressively with road, railway should increase additional services. According to Swedish experts, additional services could include better customer service, for example in the form of track and trace –systems. Also time-to-market should be enhanced. Trucks are able to organize pickup in few hours; organizing a railway transport takes many days, due to rail capacity, rolling stock and bureaucracy.

Intramodal competition[9] divides the opinion: half of the interviewed railway undertakings thought there is competition, whereas 50 per cent did not see any competition. The main explanation lies in niche operators; four railway undertakings from six stated they are operating in a niche market. One interviewee commented: *"Competition should be between rubber wheel and steel wheel, not steel wheel and steel wheel."* Therefore, they do not compete with other railway undertakings. In addition to four nichers, the sampling includes one leader and one challenger. These strategies are visible also in figure 23, which illustrates how the competition between five railway undertakings is spread around Sweden. The market leader is not included in the map (it operates country widely). Different colours present the main market areas; dark blue is used for several railway undertakings due to their narrow lines. Map describes well the situation: one nicher is located in North Sweden, were it has a dominant position in transporting iron ore for one customer. Other nichers are blue lines in middle Sweden, and red and green lines. Although the railway undertakings are working partly on the same areas, due to differences in target market they do not feel there is competition. Challenger is marked with black lines: it is actively operating in 2/3 of the country, having also active network to Denmark, Norway and Germany.

[9] Intramodal competition = competition in the same market, e.g. railway vs. railway

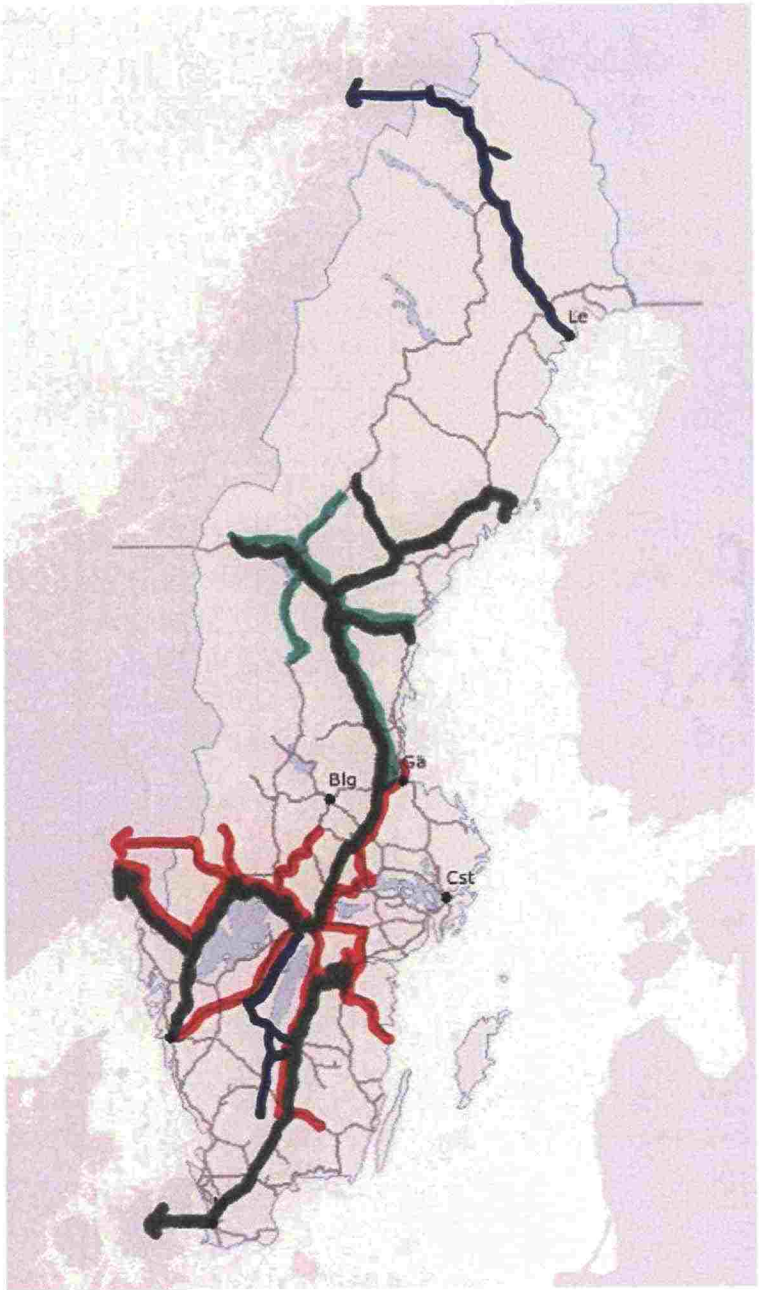

Figure 23 *Interviewed railway undertakings' market areas / Sweden (excluding the incumbent)*

The leader has transports countrywide; "One of the company's biggest assets is our network: we are able to deliver rolling stock to everywhere in Sweden." Challenger stated: "Although the customers are mainly located in middle-Sweden, we are ready to transport whatever and where ever customers need!" Railway undertakings using niche strategy are happy with the situation: "We are happy with the situation as it is now. Naturally we keep our eyes open for new business opportunities. However, we do not take customers only because we want to be bigger."

Swedish railway undertakings were rather satisfied with infrastructure's condition. Few interviewees put forward a wish to increase the length of rail network and mainly the number of tracks. The main corridors are double or triple tracked; however, normally

network has one track, which causes congestions. As one interviewee stated, *"Trains can not bypass the traffic jams like trucks"*. Banverket noted the same matter: according to the Infrastructure Manager, especially big cities are overloaded and it affects on rail capacity. Remarkable bottlenecks occur nearby main harbors when ocean vessels departure and arrive. Congestion affects most heavily on freight traffic; passenger traffic has the inside track in a case of delays or problems on the network (Banverket, 2009).

Company's performance on the market can be evaluated from the point of view of industry. According to Porter (1980), industry structure determines the strategies prospectively available to the undertaking. Especially forces outside the industry are significant: because all undertakings of a certain industry are affected by the same forces, the key question is to understand how different undertakings deal with them. (Porter, 1980) Many researches (see Casaca & Marlow, 2007; Järnvägsstyrelsen, 2007; Mäkitalo, 2007) have used Porter's five forces in analyzing the transport markets.

According to interviewees, threat of new entrant is visible in Swedish railway freight market. Various factors were mentioned: few interviewees stated they do capitalize on economies of scale in terms of locomotives, switching costs were seen high and access to network problematic. One interviewee noted the subsidies distract today's fair competition; more equal conditions were requested. Interviewees also stated proprietary experience exists in the terms of know-how and rolling stock fleets' competence.

Although intensity of rivalry exists in Swedish market on some extend, it is not seen as a barrier to entry. Price competition and customer service were seen as the major sectors; although railway undertakings try to innovate and introduce new products, in railway market it is seen hard. Road transport is the main substitute: although some short-sea traffic exists, it is not seen as respectable competitor.

Interviewees thought transport service buyers have high bargaining power. Due to increasing competition, buyers race the railway undertakings which decrease the market price. In addition, generally customers have good knowledge about the market. Due to the nature of suppliers, there exists bargaining power. Interviewees stated rolling stock needs to be bought in bigger quantities, for example ten locomotives at a time. Because there are only few suppliers in the rolling stock market, companies have a chance to affect the market situation.

6.1.4 The Swedish Rail Administration, Banverket

The Swedish Rail Administration, Banverket, is responsible for the rail network in Sweden. Banverket's main duties are to monitor and conduct developments in the Swedish railway market and assist Parliament and Government in railway related matters. They are responsible for the network's operation and administration, and they create the timetables for railway traffic. (Banverket, 2009) Therefore, the railway undertakings have cooperation with Banverket. Figure 24 describes the operators' satisfaction with Banverket.

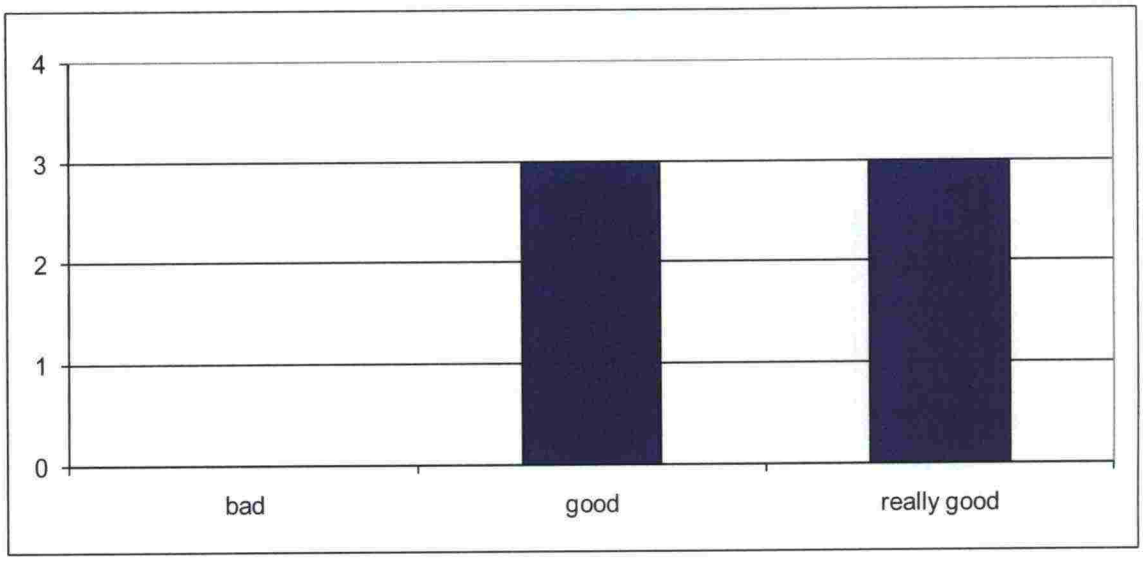

Figure 24 Cooperation with Banverket

Swedish railway undertakings are really satisfied with Banverket. Three railway undertakings stated cooperation is good; three said it is really good. In fact, one interviewee noted: *"Cooperation with Banverket is a perfect example of good cooperation"*. Especially railway undertakings were satisfied with Banverket's style to listen: according to few interviewees, Banverket asks railway undertakings' opinions and respects their requests. In addition, lower level workers' positive attitude got good feedback. According to interviewees, lower level personnel act professionally and cooperation is easy and smooth. *"Trust and personal connections are really important."* However, there are also some areas, which could be improved. Interviewees stated sometimes the cooperation with bigger managers is a bit difficult: *"Big bosses think railway undertakings only want to gain money; the field employees understand there is also something else behind the reason to do railway operations."* In addition, few railway undertakings stated every now and then Banverket has difficulties in defining their client. Additionally railway undertakings stated the Infrastructure Manager's new employees should be trained more carefully before they start to cooperate with railway undertakings; as one interviewee stated: "*First we have to teach them how to work on railway market."*

In addition to managing the infrastructure and scheduling the timetable, the Infrastructure Manager publishes the Network Statement. It is published annually in most of the European Union member countries in accordance with Directive 2001/14/EC (Banverket, 2009; Finnish Rail Administration, 2008). The main purpose of the Network Statement is to provide all railway undertakings wishing to operate transport services in a given railway infrastructure relevant and up-to-date information on a fair and non-discriminatory basis. The document presents information on legal and commercial access conditions and information on the networks' infrastructure. Members of RailNetEurope have agreed a common structure, and the aim is to harmonize information provided in the Network Statement across Europe. Because the Network Statement introduces the current legal conditions and timetables, it should be a useful tool for railway undertakings. (RHK, 2008; RailNetEurope, 2009)

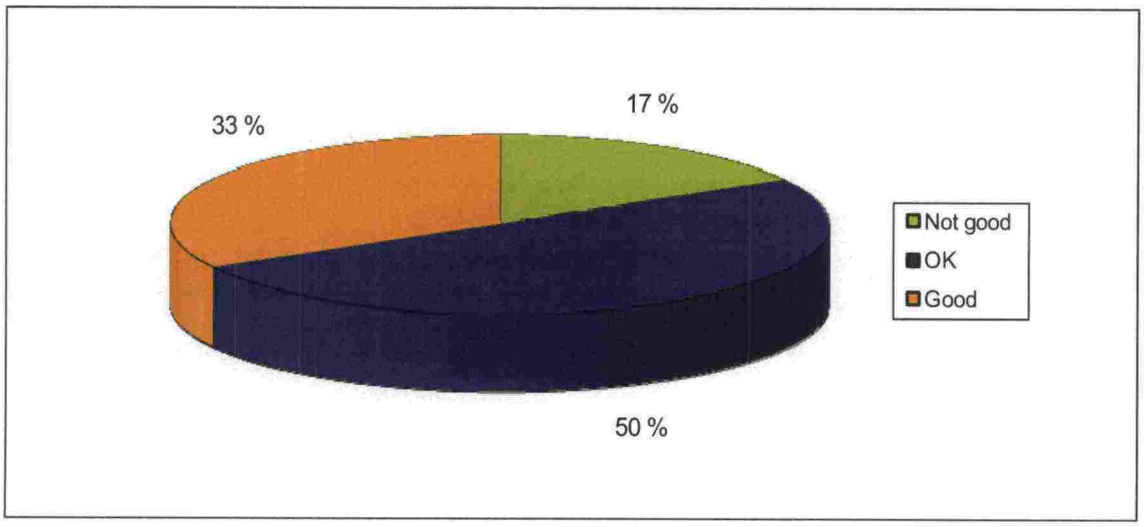

Figure 25 Swedish railway undertakings' opinion about the Network Statement

Figures 25 and 26 present Swedish railway undertakings' attitude towards the Network Statement. According to interviewees, 33 per cent thinks the Network Statement is a good and useful publication. 50 per cent of interviewed experts stated the Network Statement is ok, and 17 per cent said it is not a good publication. Some railway undertakings think the information is too general and does not provide service for the mentioned purpose. However, also the respondents, who generally are satisfied with the Network Statement stated there are few problems. One of the main problems is the stability of the published information. Data is updated annually, which creates problems in bidding procedures. Additionally, respondents stated it is impossible to know 15 months beforehand, when the deliveries should be done. *"The procedure is too bureaucratic!"* Railway undertakings want to increase the timetable's flexibility and variability. Respondents also stated the Network Statement should be more informative, it should include more maps, pictures and so on. One interviewee said: *"We need tools, not words!"* Table 17 assembles the railway undertakings' comments.

Table 17 Swedish railway undertakings' comments concerning the Network Statement; positive and negative matters

POSITIVE	**NEGATIVE**
Fulfills its purpose; gives enough information	Requests must be stated 15 months beforehand; too long planning process!
Good, helpful book	Stability of published information
Good publication	More precise information needed
	Norwegian version more informative than Swedish one

Figure 26 presents how many of the interviewed railway undertakings use the Network Statement. Only 33 per cent stated the Network Statement is actively used, while 67 per cent do not utilize the publication. The reasons reflect previous questions' line: *"Provided information is too general"*. Railway undertakings think the Network Statement should include information about the service facilities along the network (sidings, terminals and loading areas). In addition, few interviewees noted a list of companies operating in different areas (including railway undertakings, workshops, terminals, warehouses etc.) would be useful.

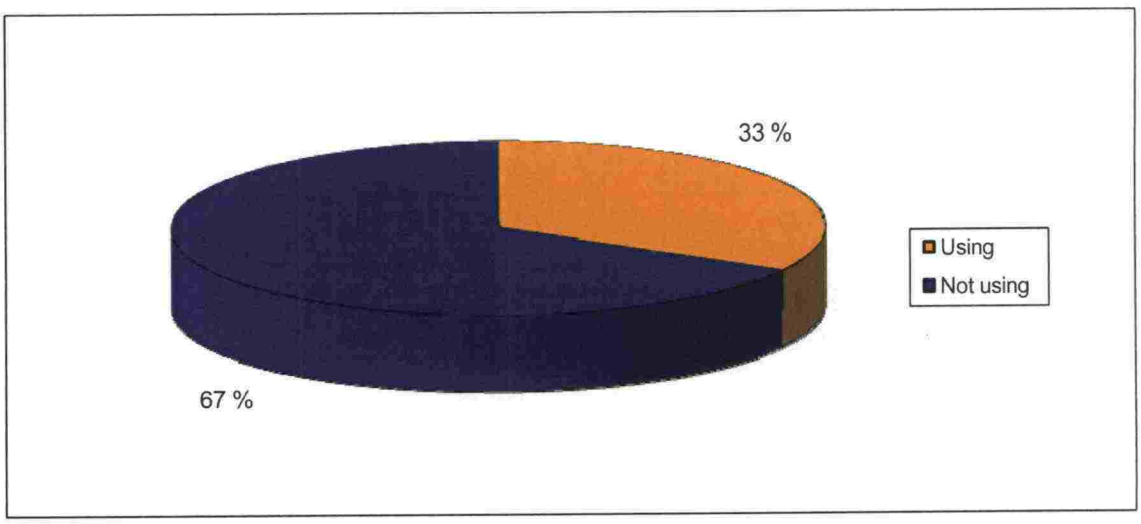

Figure 26 The Network Statement usage

The Swedish Rail Administration, Banverket, is also responsible for charging the usage of infrastructure. Infrastructure charges are governed by Railway Act. In Sweden there are two types of costs: marginal-cost-based charges and special charges. (Banverket, 2008) All six interviewees confirmed the infrastructure charge is low, and it is not a barrier to entry.

Table 18 Change from monopolistic market to liberalized market / Sweden

Factor	T	t + 1	t + 2
Market force	Monopoly	Deregulated	Free market
Number of railway undertakings	1	1	17
Barriers to entry	Huge	Large	Large
Market entry	Impossible	Start up*	Start-up, vertical integration
Price level	Normal	Normal	Decreasing
Service level	Normal	Getting better	Improving
Infrastructure charge	Low	Low	Low

Table 18 illustrates the main changes what have happened in the Swedish market after monopoly. T illustrates monopolistic situation (see figure 1), t + 1 deregulated market and t + 2 liberalized market. When summarizing the changes, number of operators has increased from one to 17. Barriers to entry are still large, but situation is obviously better than it was before the market deregulation. After the deregulation, the main market entry strategies utilized are start-up (although noting all start-up railway undertakings were old SJ) and vertical integration. Price level has decreased, and service level has improved. Infrastructure charge has stayed at the same level.

6.2 Poland

In Poland were interviewed altogether eight companies, seven railway undertakings and the Polish Rail Administration, PKP PLK. Due to companies' different nature, only railway undertakings are included in the table below. PKP PLK's results are discussed separately. In addition to Polish companies, one Lithuanian company was interviewed in order to create a view concerning the Lithuanian and Polish cooperation.

Table 19 represents the main findings from Poland. All thematic entities, divided into groups according to theme interview's model, are discussed more deeply later on in this sub-chapter.

Table 19 Main results / Poland

Measure	Company G	Company H	Company I	Company J	Company K	Company L	Company M
Knowledge about railway market before entering	Excellent	Excellent	Good	Excellent	Excellent	Excellent	Excellent
Why company entered railway industry?	Need for transport	Money	Size of the market	offer additional services	Need for transport	Opportunity	National operator
Rolling stock - where gathered when started the business?	Acquired	Coal mine	bought 2nd hand	Bought 2nd hand	Bought 2nd hand	Acquired	PKP
Personnel's background	Acquired	Coal mine	PKP / other	Acquired / PKP / other	Refinery / PKP	Acquired	PKP
Main market barriers	Licensing & admin rolling stock knowledge capital	Competition	Rolling stock Investments	Rolling stock Bureaucracy	Rolling stock (mainly locomotives)	Investments Rolling stock	Infrastructure Bureaucracy Investments
Problems and difficulties faced when entered the markets	infrastructure cost	Only 1 wagon type	XXXX	Bureaucracy	Bureaucracy	Amount of growth	XXX
Positive matters faced when entered the markets	Demand	XXXX	XXXX		Demand	No	XXX
Company's strengths	knowledgeable staff rolling stock	Personnel Experience	XXXX	Experience Intl' cooperation	Motivation Personnel	Communication Reputation	Equity / assets Experience
Company's weaknesses	IT-systems processes	Lack of electric locomotives	XXXX	Age of rolling stock Harbor operations	access to power cost of diesel	No national coverage Lack of electric locomotives	Lack of capital
Cooperation with other operators?	Some	No	Some	Some	Yes	No	Some
Intermodal competition	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Intramodal competition	Really hard	Hard	Yes	Aggressive	Strong	Aggressive	Hard
Price level	Decreasing	Increased	XXXX	Decreasing	Decreasing	Decreasing	Decreasing
Access charge	High	High	High	High	High	High	High

6.2.1 Market entry

Due to various circumstances (undertaking entered the market in 1997 concentrates on construction; 1999 established railway undertaking worked four years as a listening post) we can conclude all railway undertakings entered the markets within four years, 2001–2004. In addition, when examining only the private railway undertakings that entered the markets after the liberalization, the year distribution narrows down to two years, 2003 and 2004. Therefore, although one undertaking, earlier monopoly holder has the first mover advantage, other interviewed railway undertakings have entered the markets within the same timeframe.

Figure 27 describes the background of the interviewed railway undertakings. Dispersion is extensive: in a group of seven interviewed railway undertakings, there are five different types of backgrounds. Vertical integration is used by four undertakings, having backgrounds from heavy industry and construction; one railway undertaking applied horizontal integration (forwarding). Although, one undertaking was a new entrant on Polish market, undertaking belongs to a bigger corporation and is therefore a subsidiary. The seventh interviewed railway undertaking is the old governmentally owned operator.

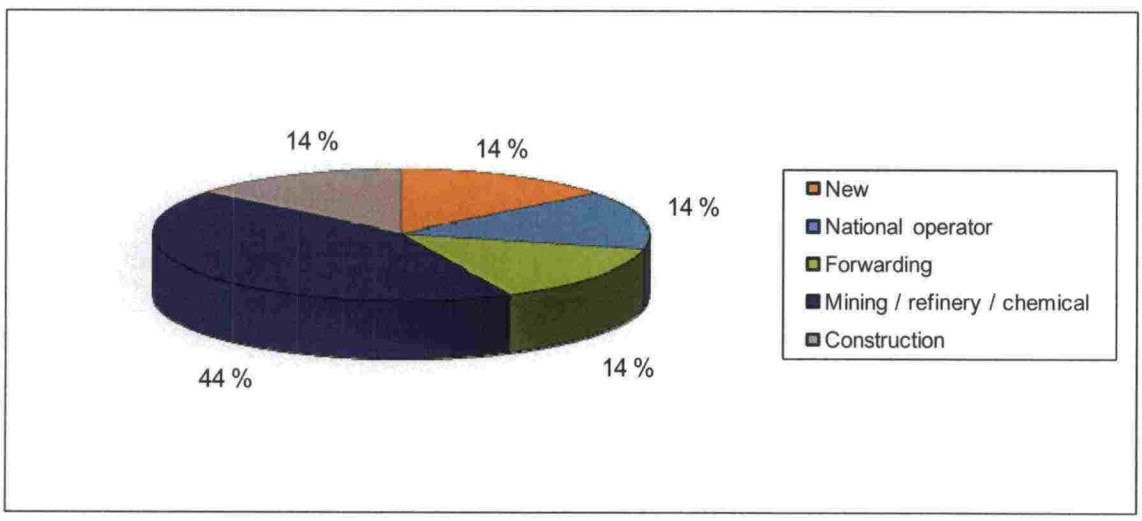

Figure 27 Background before entering railway freight market / Poland

Although, only one railway undertaking has background in railway transport, other counterparts have gained market knowledge via various ways. Therefore, all newcomers were aware of railway market's internal and external factors. For example, by acquiring personnel during the vertical integration process from the parent company, railway undertakings assembled knowledgeable employees.

Figure 28 shows remarkably that one railway undertaking has a monopoly position. As stated in various studies, Polish railway freight market has one giant-sized player, three larger private actors and numerous smaller railway undertakings. Figure compares the leader's amount of employees to other interviewed railway undertakings, including six undertakings.

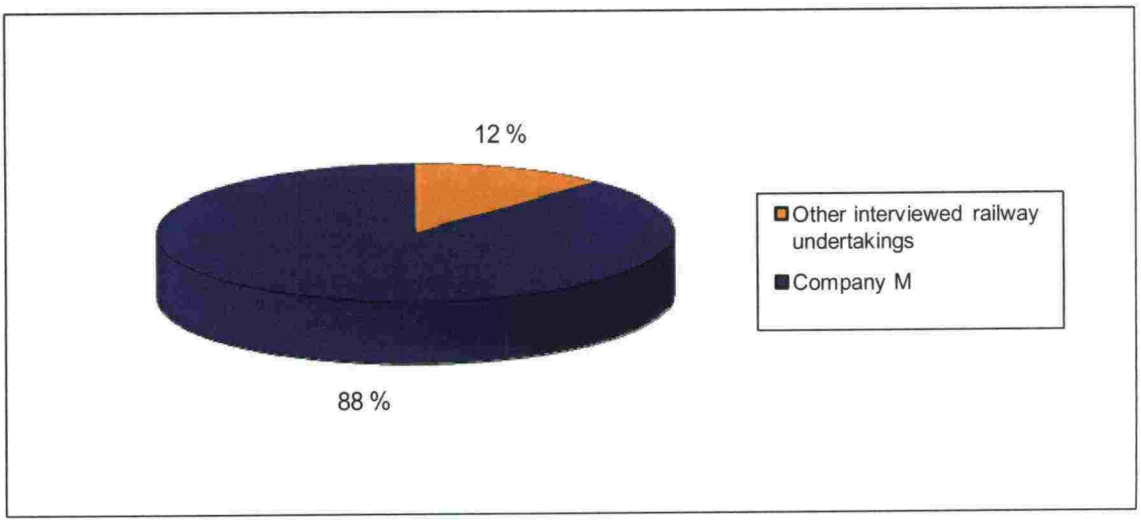

Figure 28 Personnel / market leader versus other interviewed railway undertakings / Poland

Rest of the 49 active railway undertakings are more or less small actors. However, it must be noted that because Poland is the second biggest railway freight market in Europe, a small railway undertaking in Polish market might be a big player when compared internationally. Sampling represents 14.3 per cent of Polish railway freight market's active railway undertakings; among the sampling are four biggest railway undertakings and three smaller actors.

Kotler (2000) notes companies can be classified into two types: competitor-oriented and customer-centered. By overseeing customer needs, company can decide, which customers' needs are the most important to serve with the possible resources and objectives. (Kotler 2000, 247–249) As illustrated in figure 29, the reason to enter the Polish railway market varies dramatically. Basically, three railway undertakings are customer-oriented (transport need, additional services for customers), which states 42.9 per cent of interviewed railway undertakings. Two railway undertakings saw a market opportunity due to market's size; one needed financial backup. Naturally, one undertaking was the old national operator.

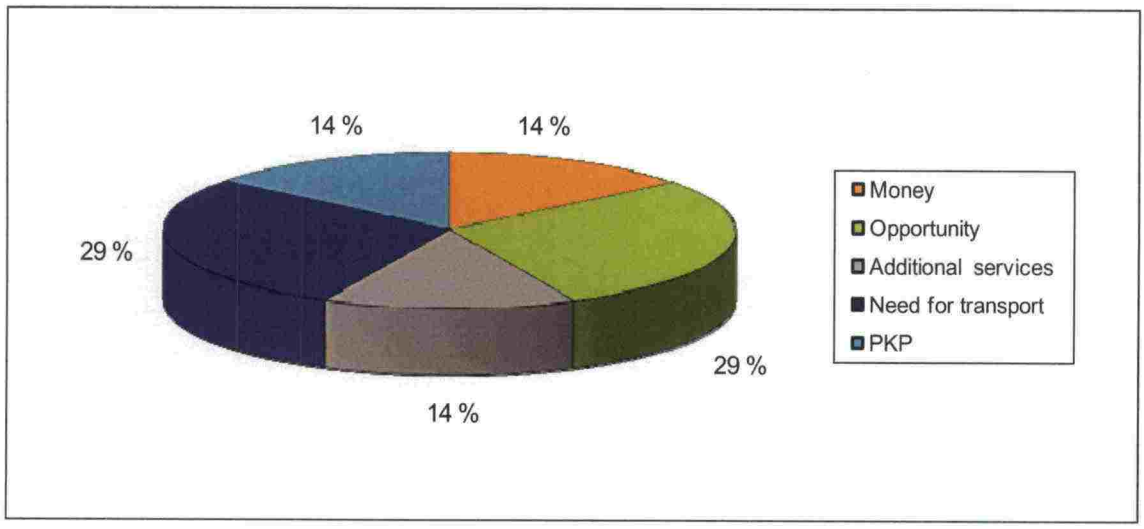

Figure 29 Reason for market entry / Poland

The railway undertakings' strengths and weaknesses reflect the versatility of the market (see table 20). As weaknesses railway undertakings' stated several thematic entities; IT-systems and processes were lacking behind and number of electric locomotives was not sufficient. Additionally, access to electric power and fuel were mentioned as weaknesses –although those can be categorized also as threats. Also engine drivers' locations were seen a weakness: although undertaking would have a possibility to practice railway traffic in whole country, the lack of drivers in various places impedes the situation.

Strengths continued the same trend: various topics were mentioned. Transport quality, communication with customers and reliable reputation state railway undertakings are focusing on customer service. Several railway undertakings noted experienced and knowledgeable staff is among their main strengths.

Table 20 Polish railway undertakings' strengths and weaknesses

STRENGTHS	WEAKNESSES
Equity / assets	Lack of capital
Experience; knowledgeable staff	IT-systems and processes
Motivation	Number of electric locomotives
Streamline management	Not access to fuel in several places
Rolling stock	Access to electric power
Reliable reputation	Drivers not located throughout the country
Communication with customers and internally	
High-level of technological competence	
Transport quality	
International experience	
Diversified transport possibilities	

Because most of the personnel had background from PKP, all railway undertakings have good knowledge of the market (see table 21). Generally, attracting employees is easy, although there is only little movement inside the market. According to interviewee, the two main groups of employees are the maintenance people working in workshops and the engine drivers. Although PKP is reluctant to give up any of its drivers, railway undertakings stated it is easy to find engine drivers. Due to European Union legislation, there are strict rules and requirements, which drivers need to fulfill in order to act as a driver. Therefore, undertakings have own training programs, which educate the future engine drivers. For example, one railway undertaking described their program trains driving assistants, who after some experience can move on to engine drivers. A versatile mix of old and new engine drivers is an objective undertakings want to achieve. Interestingly, one interviewee stated engine drivers study languages, in order to operate in the international market.

Table 21 *Railway undertakings' comments concerning drivers and personnel in general / Poland*

ENGINE DRIVERS	PERSONNEL IN GENERAL
Drivers need to study languages	High knowledge level
Undertakings have own training programs	Only little movement inside the market
PKP is reluctant to give up any of its drivers	Quite often background from PKP
Easy to find engine drivers	Big flow of employees from PKP to private railway undertakings
Strict rules and requirements	Easy to find personnel

According to Robertson et al. (2003), the main obstacle for new entrants is finance. Without doubt, the biggest financing object in railway is rolling stock. In Poland railway undertakings gathered rolling stock by various means: vertically integrated railway undertakings acquired the rolling stock from parent company. However, railway market in Poland faced a critical situation, because the national operator did not sell the old locomotives to new entrants, although many of them were unused. Due to this national peculiarity, railway undertakings had to buy rolling stock from abroad, countries like Czech Republic, Romania and Germany. In order to fulfill the requisite standards, all units acquired abroad had to pass remarkable maintenance work, which naturally cost exceedingly. As one interviewee stated, *"We had to invest eight to ten million dollars only for repair work!"* Understandably, this affects on railway undertakings' possibilities to acquire various types of locomotives. Additionally, there were more diesel locomotives available for cheaper price.

Table 22 *Locomotives types per railway undertaking / Poland*

	diesel	electric
Company G	79	32
Company H	36	0
Company I	6	0
Company J	94	102
Company K	35	35
Company L	18	2
Company M	1849	1653

Because diesel locomotives are cost-effective due to multi-functional nature and able to drive on whole network, several railway undertakings own more diesel locomotives (see table 22). However, after undertakings have been operating for a while, they increase the locomotive fleet by buying electric locomotives. Some interviewees stated they are checking different opportunities and planning to buy electric locomotives.

6.2.2 Market entry barriers

According to earlier studies (Brewer, 1996; Ludvigsen & Osland, 2009; Mortimer et al., 2009; Mäkitalo, 2007; Steer Davies Gleave Poland, 2003) the main barriers to entry are exogenous barriers: acquiring the rolling stock and bureaucracy. However, there are differences between countries. Brewer (1996) noted perceived level of access charges was also seen a barrier in UK; in Finland (Mäkitalo, 2007) and Sweden (Steer Davies Gleave Sweden, 2003) researches estimated the difficulty of accessing the services creates a great market entry barrier. Minor barriers to entry concluded long market entry phase, recruiting staff and inadequate rail capacity. Mäkitalo (2007) noticed endogenous barriers are present in Finland: the actions of the market dominating railway undertaking might complicate the entry process. Figure 30 presents the findings from Poland.

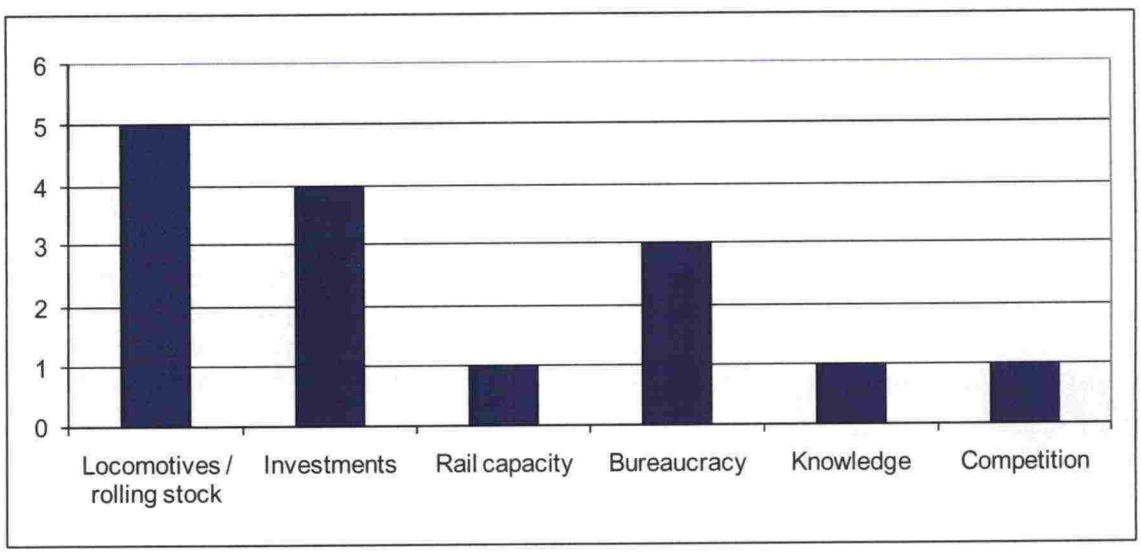

Figure 30 Market entry barriers / Poland

Due to railway industry's nature, investments are mainly locomotives and wagons. Result states in Poland the main market entry barrier is needed investments: nine railway undertakings named rolling stock or investments as the main barrier to entry. Three railway undertakings thought investments / rolling stock is the only barrier, four railway undertakings specified also other barriers. According to three railway undertakings, bureaucracy is an entry barrier. Rail capacity, market knowledge and competition with the market leader were mentioned once.

When comparing the results with earlier studies, we can notice similarities and discrepancies. Investments acquiring the rolling stock and bureaucracy are estimated high in all studies. Endogenous barrier, namely actions of the market dominant undertaking, is stated as a barrier to entry in Poland. This is in line with Mäkitalo's research (2007). Additionally, Mäkitalo (2007) described recruiting personnel is a market barrier. According to this research, engaging employees is easy.

6.2.3 Infrastructure

Intermodal competition continues really hard in Poland. All interviewed railway undertakings stated there is intermodal competition (see figure 31). According to interviewees, Poland's location in main Europe enables only road transport as a respectable competitor. According to interviewee: *"Sea transport has collapsed; it has faced really noticeable decline..... Only actual competitor to railway is road."*

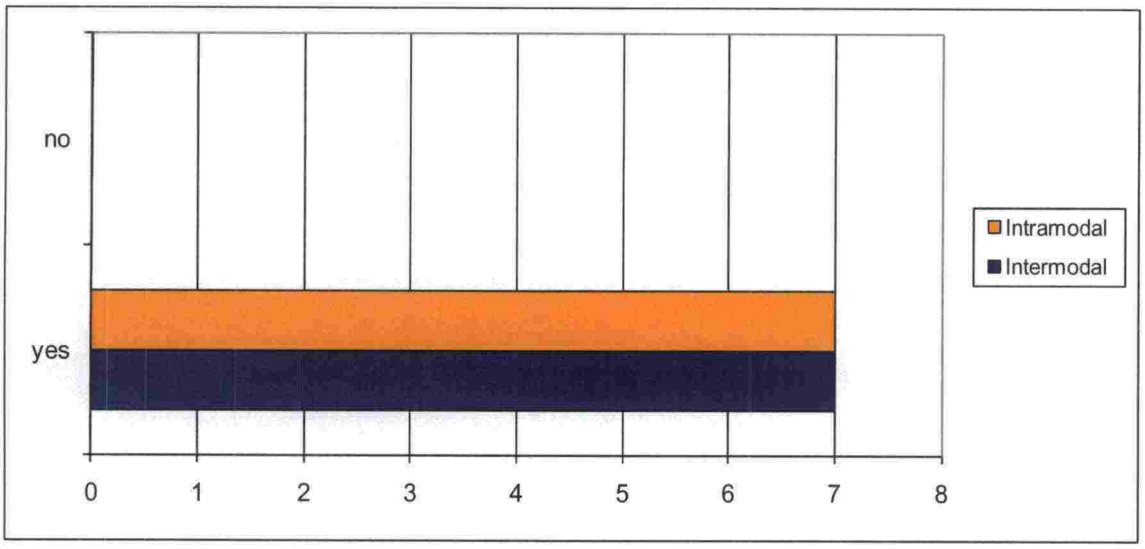

Figure 31 Intermodal / intramodal competition in Poland

Same trend continued in intramodal competition. All interviewed railway undertakings highlighted the competition between railway undertakings is really hard. Words aggressive, really strong and hard were used frequently. However, term "positive" and respect were used: *"Private operators are aggressive on the markets – in a positive way";* according to another interviewee: *"Really aggressive competition, although railway undertakings do respect each other."* This is explained by the fact practically all railway undertakings operate countrywide: among the interviewed railway undertakings were only two niche operators. In addition to leader and two nichers, we can identify three challengers and one follower. Therefore, we can state Polish market has really strong competition. This is visible also in figure 32. One exception exists: PKP LHS (PKP Linia Hutnicza Szerokotorowa spółka z o.o. w Zamościu) is the only railway undertaking in Poland practicing railway transport using the wide gauge. The network covers around 400 km from the Polish – Ukrainian border in Hrubieszów, and ends in Sławków. (PKP LHS, 2009)

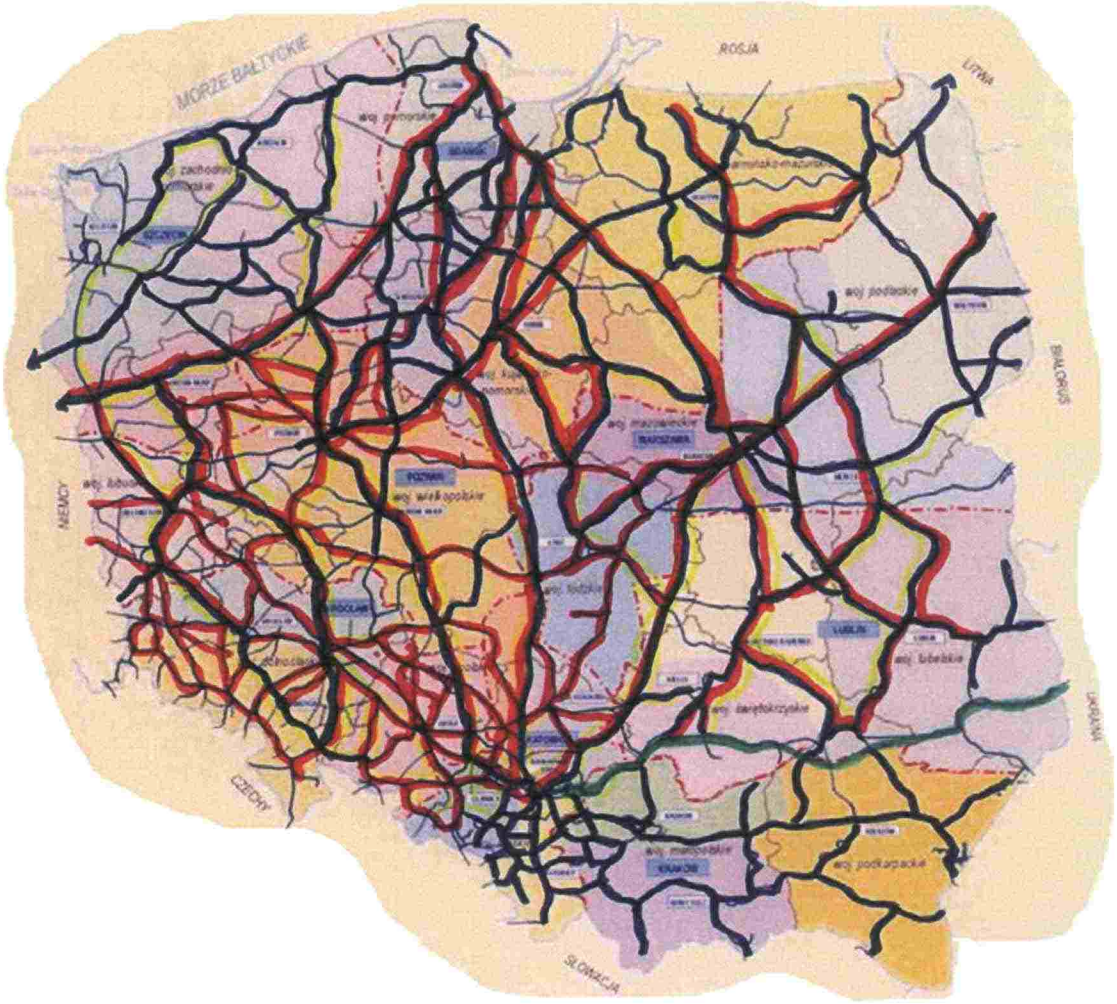

Figure 32 Railway undertakings' market areas / Poland

Polish railway undertakings stated their dissatisfaction for the rail network's condition. Interviewees commented the Polish Rail Administration, PKP PLK, repairs the rail network; however due to network's length, the assets are used to maintain the main passenger corridors. Because freight is transported throughout the country, some parts are in really bad condition. All interviewees stated Polish rail network is in bad condition. This affects directly on the commercial speed. Correlation between infrastructure charge, transported goods and commercial speed is presented in figure 33.

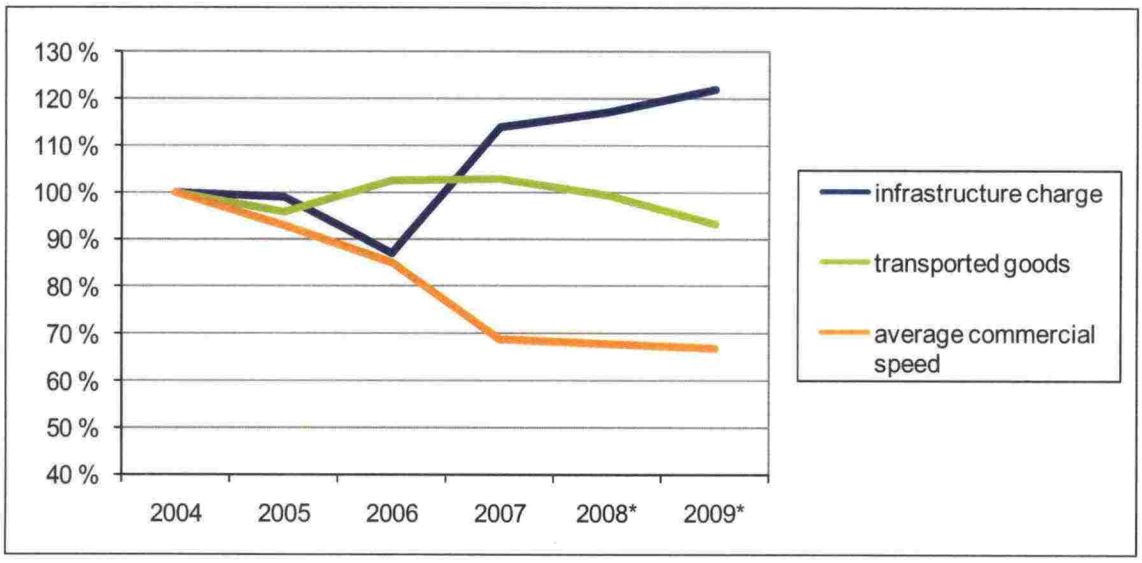

*Figure 33 Correlation between variables (*estimation) (CTL Logistics, 2009)*

In 2005 and 2006 the direction was mainly positive. Amount of transported goods was increasing, while infrastructure charge decreased. Average commercial speed was decreasing, partly due to increased number of transportation. In 2007 the situation changed dramatically. Because year 2006 had positive figures, the Polish government decreased the amount of governmental support for PKP PLK. The Infrastructure Manager had to increase the infrastructure charge in order to gather needed amount of money for infrastructure maintenance. Due to increased infrastructure charge, volume of transported goods started to decrease. At the same time average commercial speed continued declining, partly due to infrastructure's bad condition. Since 2007 the market situation has been really bad. Infrastructure charge is increasing annually, while volume of transported good decreases. Average commercial speed is also declining. According to interviewees: *"The average commercial speed is around 20–30 km / h; in Germany operators are fined if the speed goes under 50 km / h!"*

The average commercial speed affects directly on transportation costs. One interviewee gave a good example; "If a block train with one locomotive + 30 wagons runs more than 400 km in 30 km / h, the transportation cost is 28 PLN / ton. If speed decreases to 20 km /h, cost increases to 30.88 PLN, which is 10.3 per cent increase. In other words, undertaking needs to increase the number of rolling stock with seven locomotives and 161 wagons!" Therefore, the condition of infrastructure is really important matter in railway transport.

Company's performance on the market can be evaluated from the point of view of industry. According to Porter (1980), industry structure determines the strategies prospectively available to the undertaking. Especially forces outside the industry are significant: because all operators of a certain industry are affected by the same forces, the key question is to understand how different undertakings deal with them. (Porter, 1980) Many researches (see Casaca & Marlow, 2007; Järnvägsstyrelsen, 2007; Mäkitalo, 2007) have used Porter's five forces when analyzing the transport markets.

According to interviewees, threat of new entrant is strong in Polish railway freight market. Various factors were mentioned: several interviewees stated they do capitalize

on economies of scale in terms of rolling stock, switching costs were seen high and access to network problematic. All interviewees noted capital requirements are enormous. Because transport contracts are capital intensive, railway undertakings prefer to do long-term contracts affecting on switching costs. Interviewees also stated proprietary experience exists in the terms of know-how. In addition, one railway undertaking stated brand plays a big role in their strategy; few undertakings mentioned they have done some advertising. However, as the best way of advertising was seen word of mouth.

Intensity of rivalry is really hard and aggressive in Poland. Price competition was described as "cruel and insane". Due to large extent of competition, some railway undertakings offer really low prices which damages whole market. Therefore transport service buyers have bargaining power. According to interviewees, basically the main and only substitute for railway transport is road. Poland's location does not favor sea transport; especially now when legislations and needed certificates are getting harmonized, it's more time-efficient for customers to use railway instead of short-sea transport for example from Rotterdam or Antwerp.

Due to the nature of suppliers, there exists bargaining power. Interviewees stated rolling stock needs to be bought in bigger quantities, for example ten locomotives at a time. Because there are only few suppliers in rolling stock market, railway undertakings have a chance to affect the market situation. The matter has a large influence in Poland, due to difficult availability of second-hand rolling stock.

6.2.4 The Polish Rail Administration, PKP PLK

The Polish Rail Administration, PKP PLK S.A., is responsible for the national rail network. The main responsibilities include network management, constructing timetables, granting rail capacity and repairing the network. As Infrastructure Managers in many other European countries, PKP PLK is responsible for publishing the Network Statement. It has been published since 2004 and according to Railway act of 28 March 2003, it is published annually. (PKP PLK, 2008) The Network Statement's aim is to provide all railway undertakings wishing to operate transport services in a given railway infrastructure relevant and up-to-date information on a fair and non-discriminatory basis. The document presents information on legal and commercial access conditions and information on the networks' infrastructure. Members of RailNetEurope have agreed a common structure, and the aim is to harmonize information provided in the Network Statement across Europe. Because the Network Statement introduces the current legal conditions and timetables, it should be a useful tool for railway undertakings. (Finnish Rail Administration, 2008; PKP PLK, 2009; RailNetEurope, 2009)

Railway undertakings have to work in close cooperation with PKP PLK. Figure 34 describes interviewed railway undertakings' satisfaction level with PKP PLK's service.

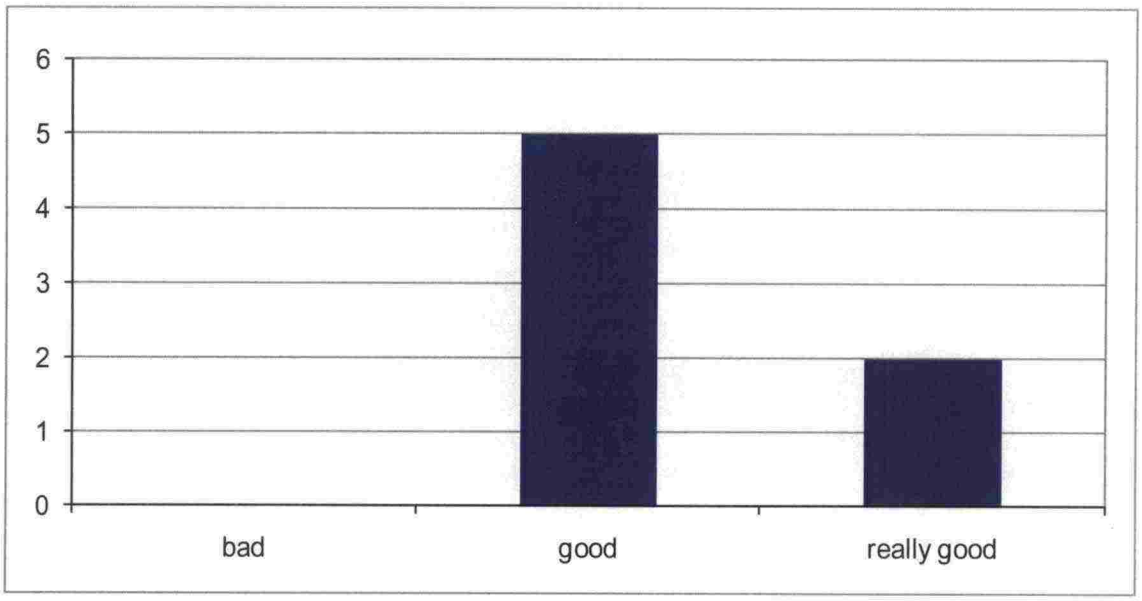

Figure 34 Cooperation with PKP PLK

All interviewed railway undertakings stated cooperation with PKP PLK is either good or really good. According to one interviewee, *"This is a good example of good business relations"*. Two interviewees described PKP PLK provides good service for railway undertakings; in addition, two undertakings mentioned PKP PLK treats all railway undertakings the same way, which is really important in the tough market. Few interviewees described the personnel have close relationship to PKP PLK's employees due to common history in the old PKP; this naturally helps the situation. Quoting one interviewee, *"Conversations and negotiations can be done on a frank basis"*. Trust is seen as an important feature in Polish market. However, there is some dissatisfaction. Few interviewees proclaimed concern about the fact PKP PLK is part of PKP Group. They state this produces conflict of interests. They suggested PKP PLK should be restructured away from PKP group. One interviewee stated they have problems in getting rail capacity for ad hoc trains: the decision making can take up to 72 hours, or even more. *"If customer demands transportation tonight, they cannot wait for 72 hours"*. Therefore PKP PLK should enhance the decision making process. Figures 35 and 36 describe Polish railway undertakings thoughts about the Network Statement.

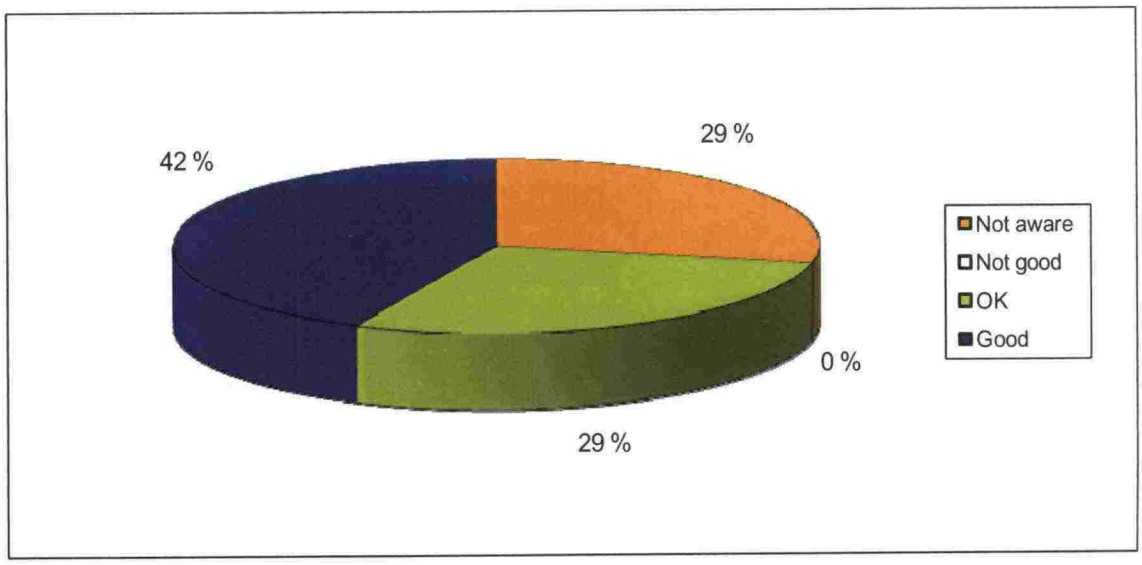

Figure 35 Polish railway undertakings' opinion about the Network Statement

According to interviewees, 42 per cent thinks the Network Statement is a good and useful publication. 29 per cent of interviewed experts stated the Network Statement is ok; no one thought it is not a good publication. However, two railway undertaking representatives were not sure, if Poland has the Network Statement. Reason might stand in interviewed level: although railway undertakings' operation departments would use the publication, prospectively manager level is not aware of it. Same trend is seen in figure 36, which illustrates the usage of the Network Statement.

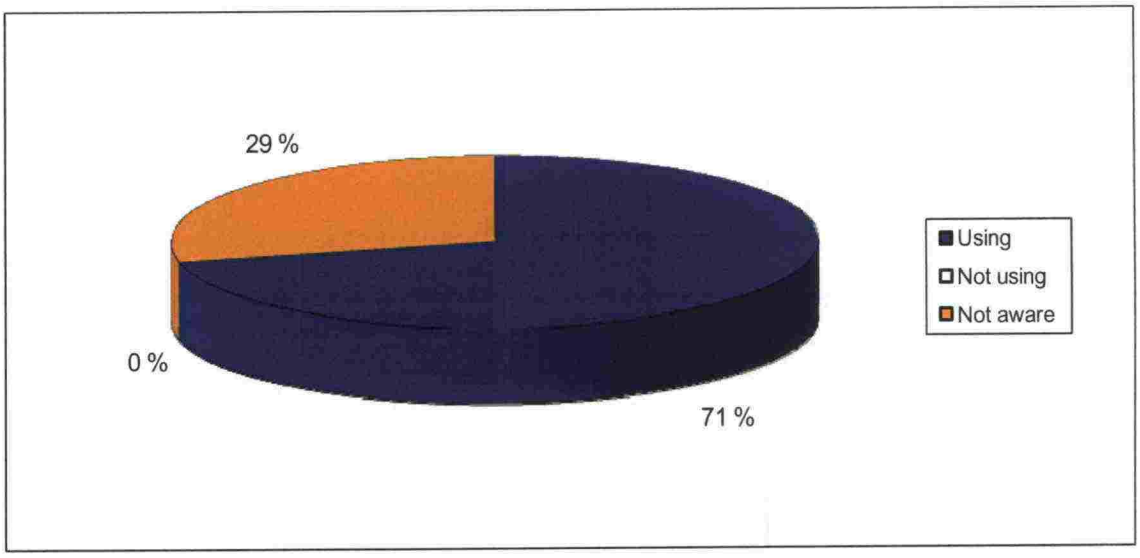

Figure 36 The Network Statement usage / Poland

All interviewed railway undertakings that were aware of the Network Statement, are using it regularly. It was seen a good and useful publication. However, some dissatisfaction was expressed. *"How can we create Business Plans connected with buying modern railway stock and show banks, which could finance it, documents that would meet their requirements, if the game rules on the railway market can change*

from year to year? Stability of legal solutions, knowledge of rules and infrastructure charges in a long term is one of the main conditions for taking investment decisions by carriers."

However, worth mentioning is, when railway undertakings were asked about the Network Statement, most could not recognize the publication. After re-checking, the above data was collected. Naturally, the reason might lie in the level of interviewed persons: top managers do not need to be aware of all publications used in operating level.

The Polish Rail Administration, PKP PLK, is the authority who charges from using the infrastructure. The costs are prescribed in Railway Act of 28th March 2003 on railway transport and degree of Minister of Transport of 30 May 2006 on conditions concerning access and use of railway infrastructure (last amendment has been done 18th August 2008). Both of these were issued according to Directive 2001/14. (PKP PLK, 2009) The infrastructure charge chart is basically a triangle (see figure 37).

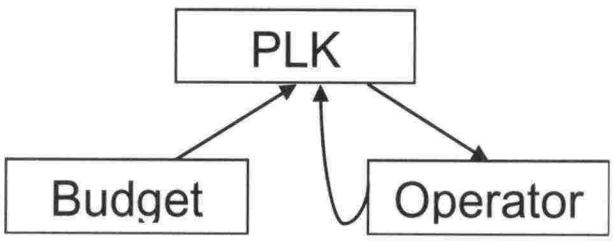

Figure 37 Infrastructure charge triangle (CTL Logistics, 2009)

The national budget allocates annually money to PKP PLK for repairing and maintaining the infrastructure. PKP PLK defines annually the infrastructure charge railway undertakings need to pay in order to use the network. There is a direct correlation between the infrastructure charge and amount received from government: if national budget gives a lot of money to PLK, the infrastructure charge is lower. Correspondingly, if the budget gives less money, the price railway undertakings' have to pay increase and railway undertakings are less competitive. If infrastructure charge is high, transported volumes decrease and government receives less money. Due to decrease in charges collected, there is a tendency to increase the infrastructure charge. Therefore the triangle creates a never-ending circle.

In addition to infrastructure charge, PKP PLK charges additional costs, namely: 1) access to refueling facilities, 2) access to freight terminals, 3) access and use of marshalling yards, 4) access and use of tracks and facilities for train sets formation, 5) use of storage sidings, and 6) monitoring of dangerous goods transport. (PKP PLK, 2009) All interviewed railway undertakings stated infrastructure charge is really high. It is the second highest in the whole Europe, after Slovakia. Interviewees explained the charge is 30–35 per cent from total costs and it is increasing annually. Although, railway undertakings stated sharply it should be lower, one interviewee commented: *"As long as it is charged in non-discriminately way, all railway undertakings are competing on the same basis".*

Table 23 Change from monopolistic market to liberalized market / Poland

Factor	**t**	**t + 1**	**t + 2**
Market force	Monopoly	Deregulated	Free market
Number of railway undertakings	1	1	Over 90
Barriers to entry	Huge	Large	Large
Market entry	Impossible	Vertical integration	Start-up, vertical integration, subsidiary
Price level	Normal	Normal	Decreasing
Service level	Normal	Getting better	Improving
Infrastructure charge	High	Higher	Even higher

Table 23 illustrates the change of market from monopolistic competition to liberalized market. As table describes, the number of railway undertakings has increased dramatically. Today Polish market has over 90 railway undertakings (49 are active). Barriers to entry still exist. Market entry has developed from the beginning. 2003 when first private railway undertakings entered the markets, the mainly used market entry strategy was vertical integration. Today, railway undertakings are using start-up, vertical integration and subsidiaries. Price level is decreasing and service level is getting better. Infrastructure charge is increasing annually.

7 RESEARCH RESULTS – COMPARISON BETWEEN SWEDEN AND POLAND

Chapters 6.1 and 6.2 introduced the situation on the Swedish and Polish markets. This chapter concludes the findings and discusses the outcomes.

7.1 Market entry

Polish and Swedish railway freight markets are different, partly because liberalization process was done during different decades. Sweden started the liberalization process in 1988 and Poland in 2000; first private railway undertakings entered the markets in Sweden 1990, although the access to whole network was granted only in 1996. (Alexandersson & Hulten, 2005) Polish railway freight market faced the first private entrant in 2003 (PKP PLK, 2009). However, due to national peculiarities, like the type of main industries, we can assume the situation would have been the same although countries would have done the process concurrently. The interviewees have entered the markets in early stage; vertical integration and start-ups are the main market entry strategies used. Strong interest towards liberalized market can be seen in both countries. Figure 38 introduces the railway undertakings' backgrounds before entering the railway freight market.

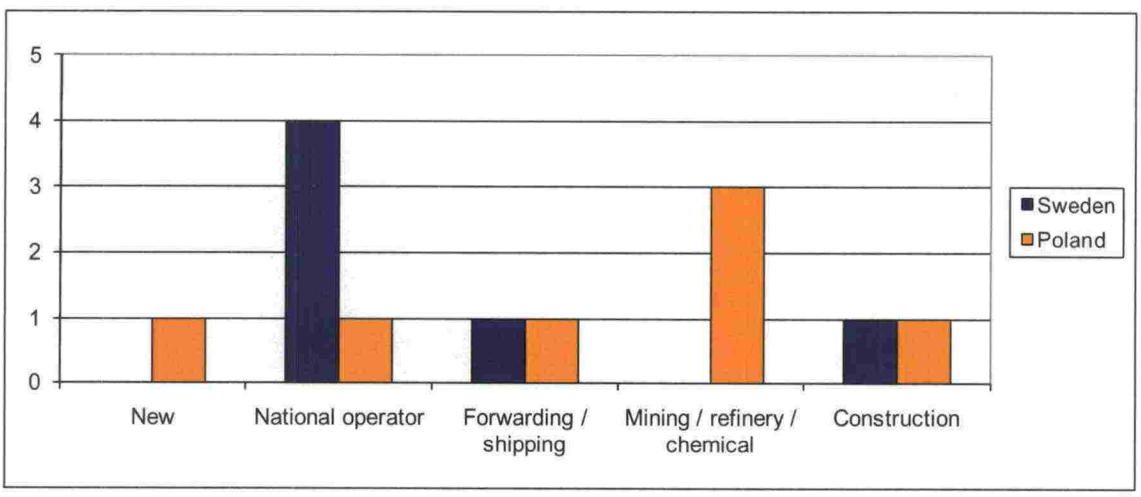

Figure 38 Backgrounds of the interviewed railway undertakings

The difference between Sweden and Poland is clearly visible. In Sweden the mostly used market entry strategy was start-up, whereas Polish railway undertakings employed vertical integration. In Sweden most of the private railway undertakings started as novel railway undertakings from old SJ; in Poland the main background before entering railway freight market was in heavy industry, mining / refinery / chemical. Other backgrounds present a minor role. This states the great difference between the case countries: in Poland the governmentally owned enterprise did not privatize and enable market possibilities for new railway undertakings. In Sweden SJ decided to open business opportunities for new start-ups in the areas, which were unprofitable for SJ. At the same time, situation describes the countries' industrialization: in Sweden, likewise

in Finland, the main industries include pulp, timber, paper and steel, which transport are outsourced for railway undertakings.

In Poland the main industry sectors are mining, including iron and coal, and steel products. Due to market's size volumes are really high, which enabled companies to establish own railway undertakings. This reinforced the relationship between the railway undertaking and customer. Therefore, we can state the customer-driven model is starting to increase its market share in Eastern Europe. However, the difference between western and eastern country is still visible: when entering the markets, customer-centered strategy was used by 42.8 per cent Polish operators, compared to Swedish 83.3 per cent. Although, customer service and customer-orientation is starting to grow in Eastern Europe, it still has a long way to the western European level.

In both countries the old monopolistic undertaking has the major market share. In Sweden, Green Cargo leads the way with 75 per cent, PKP Cargo in Poland is the number one with 78 per cent. However, due to market situation and the hard competition, both markets are changing. Especially in Poland the competition is becoming harder, and governmentally owned undertaking loses market share to smaller railway undertakings. In Sweden the same situation is visible in smaller scale. The sampling presents a good cross-section of the railway freight market: from both countries the leader, challengers and nichers were interviewed. Therefore, we can say this research's sampling is congruent and extensive in both countries.

All railway undertakings in both countries have excellent or good market knowledge. This is ascertained by employing the skillful and experienced staff. All interviewees described the personnel have long history in railway transport, either from other railway undertakings, mainly the old monopolistic enterprises, or from vertically integrated industries. All interviewees emphasized the personnel is the key asset and the reason for railway undertakings' success.

Rolling stock acquisition differs between countries involved. Starting phase is identical, since all new entrants start with second hand locomotives. The situation is harder in Poland, where the governmentally owned undertaking do not sell additional locomotives to private undertakings. Polish railway undertakings need to acquire all rolling stock from abroad, which creates extra costs.

7.2 Market entry barriers

According to earlier studies (Brewer, 1996; Ludvigsen & Osland, 2009; Mortimer et al., 2009; Mäkitalo, 2007; Steer Davies Gleave Sweden, 2003), the main barriers to entry are exogenous barriers: acquiring the rolling stock and bureaucracy. However, there are differences between countries. Brewer (1996) noted perceived level of access charges was also seen a barrier in UK; in Finland (Mäkitalo, 2007) and Sweden (Steer Davies Gleave Sweden, 2003) researches estimated the difficulty of accessing the services creates a great market entry barrier. Minor barriers to entry concluded long market entry phase, recruiting staff and inadequate rail capacity. Mäkitalo (2007) noticed also endogenous barriers are present in Finland: the actions of the market dominating railway undertaking might complicate the entry process.

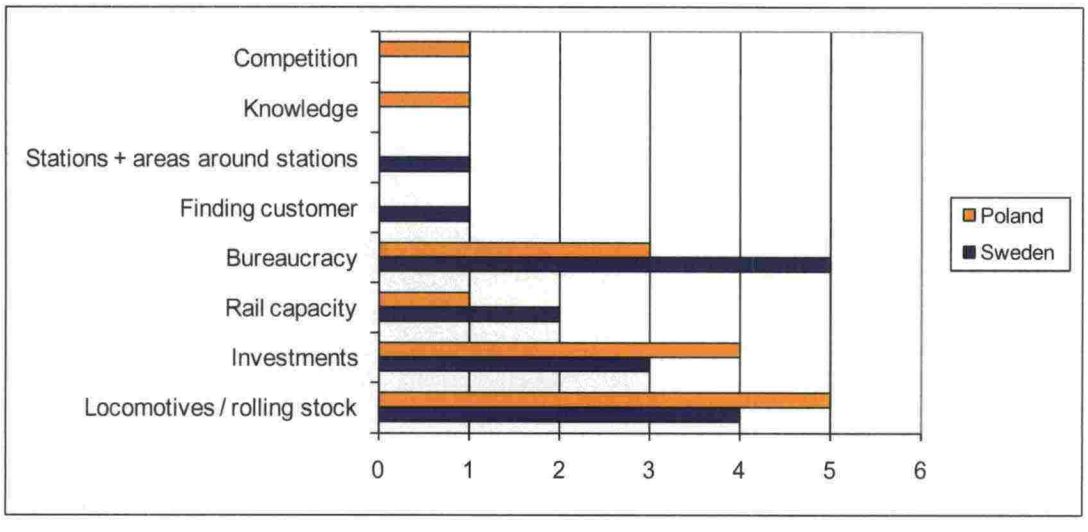

Figure 39 Market entry barriers in Sweden and Poland

Figure 39 gathers the market entry barriers faced by the railway undertakings in Sweden and in Poland. Exogenous barriers, acquiring rolling stock and bureaucracy, are seen as major barriers to entry. Therefore, the outcome is in line with earlier studies. However, countries involved have some special characteristics. The Swedish railway undertakings stated respectively bureaucracy, rolling stock and investments. In Poland railway undertakings stated same three topics but in different order: rolling stock acquisition was seen as a major entry barrier, following by investments and bureaucracy. In both countries bureaucracy associates to needed paper work: great number of needed documents and certificates surprises. Title "bureaucracy" includes also the entry process, which was seen long and exhausting. Although, persons had decades experience on the market, process was seen impossible without help from consultants and experts. The fact Swedish railway undertakings saw bureaucracy as a bigger problem than Polish counterparts might be courtesy of the western business style: in western countries people are not used to have lots of paper work; in eastern parts countless need of documents, stamps and signatures are ordinary. This might conclude the fact Polish railway undertakings saw bureaucracy only as third biggest barrier, after rolling stock and investments.

Because the main investments in railway market are locomotives and wagons, investments and rolling stock can be seen partly united entry barrier. Few operators stated terminals and loading areas as investments; however, the majority of the interviewees saw rolling stock as the main investment. The main reason why rolling stock was seen an entry barrier lies in availability of rolling stock and the price of locomotives and wagons. Although, wagons are not expensive when bought individually, generally railway undertakings need to buy bigger fleets at once which increase the needed investments. Locomotives are extremely expensive, the price of a new locomotive is around three to five million Euros, depending on the locomotive's characteristics. Normally new railway undertakings do not have needed amount of money to buy new locomotives; therefore railway undertakings prefer second hand locomotives. Although, the governmentally owned railway undertaking in Sweden has sold old locomotives to private undertakings, in order to satisfy the demand railway undertakings have bought second hand locomotives from countries like Germany,

Austria and Denmark. Polish railway undertakings have acquired locomotives from Romania, Czech Republic and even from Morocco. The need for foreign locomotives is greater in Poland, arising from the fact the governmentally owned undertaking do not sell its old locomotives to private railway undertakings, although there are hundreds of locomotives unused. This might explain why rolling stock and especially locomotives were seen as major entry barriers in Poland.

Other entry barriers represent a minor role in studied countries. Rail capacity and need for sidings / terminals is mentioned both in this and Mäkitalo's research (2007). However, some discrepancies are visible. In this study railway undertakings did not mention long market entry phase as a barrier, although it came up in few conversations. Competition with the market dominating undertaking was stated only once, therefore it can not be seen as a serious barrier. The main discrepancy lies in staff recruitment: this research's outcome states there are no difficulties to recruit staff. In actuality, several interviewees noted there is well educated and experienced staff available. It seems some employees prefer working in smaller railway undertakings, where people know colleagues and work is more relationship-based. Many interviewees stated an adequate mixture of old and new staff is an ideal situation: this ensures the know-how is transferred to new generation, together with the latest knowledge.

7.3 Infrastructure

According to several references, railway market has faced losses during the last decades. The main shift has happened from railway to road transport. Although, European Union purifies railway's reputation from being dirty transport mode used only in heavy and bulk industries, railway undertakings still have a long path ahead in order to increase the volumes up to the levels in 1950s. However, railway is seen as a respectable competitor for other transport modes, namely road, air and sea. Due to the nature of goods transported via air, the main competitors are road and sea. The same outcome was found also from the studied countries.

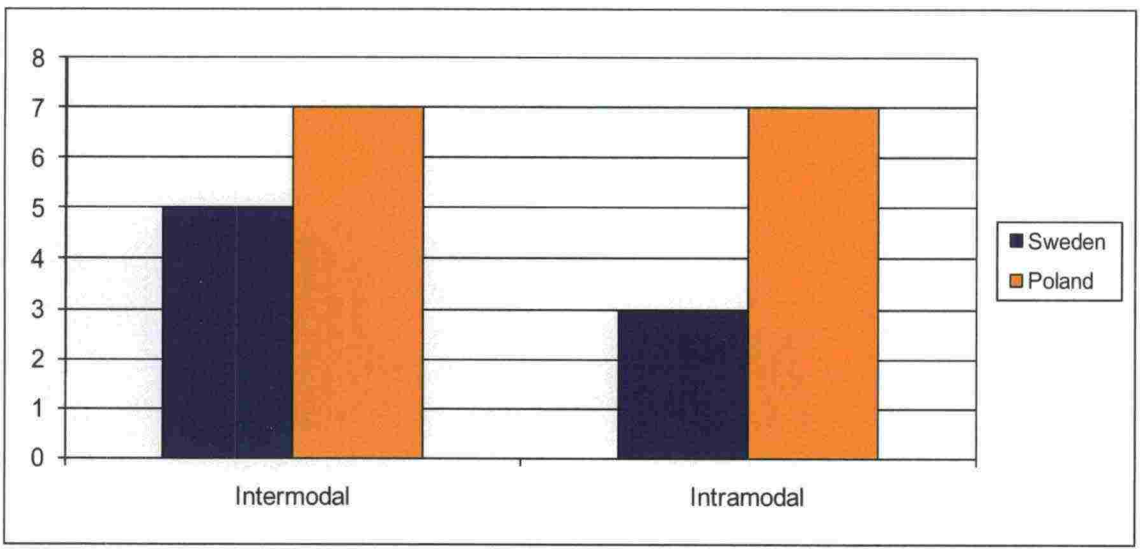

Figure 40 Intermodal / intramodal competition in Sweden and Poland

Figure 40 presents the interviewees' opinion towards intermodal and intramodal competition. Both competition branches face harder times in Poland: all interviewees stated there is competition with other modes of transport. In Sweden 83.3 per cent of interviewees thought there is intermodal competition. Sea transport was noted as a competitor only in Sweden.

Intramodal competition, the competition inside the market, was seen extremely hard in Poland. All interviewees commented competition as aggressive and really hard. In Sweden the situation was distinctly different. Only 50 per cent of interviewees stated there is competition. Same uniformity was seen in figures 23 & 32, presenting railway undertakings' operational areas. The difference in strategic groups partly explains the old-boy network, which is a norm in the Swedish market. In Poland the market situation is different. This is illustrated in figure 41.

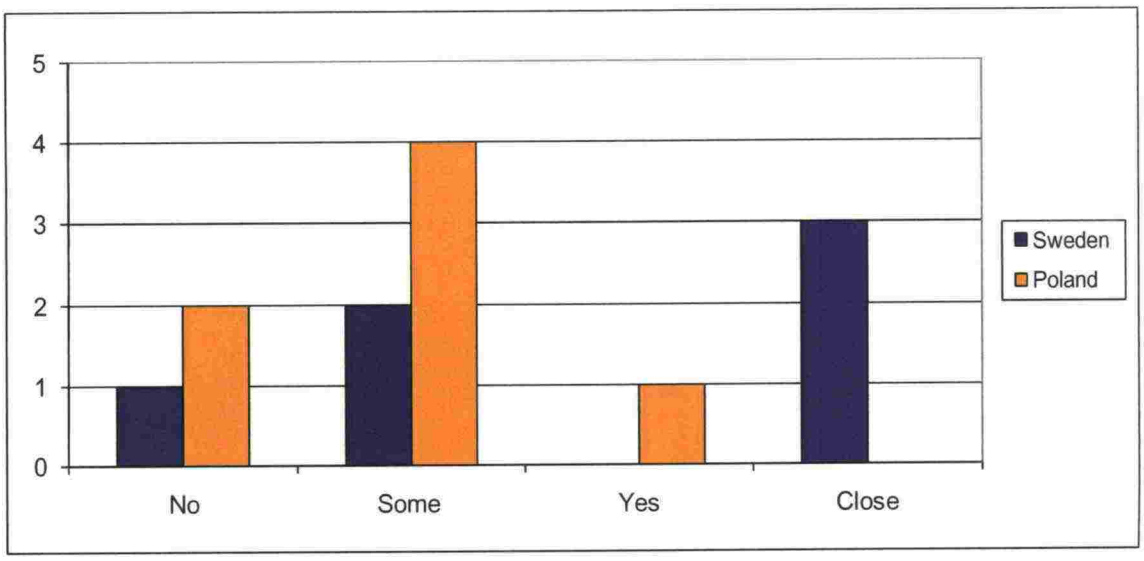

Figure 41 Cooperation between railway undertakings in Sweden and Poland

In Sweden only one railway undertaking stated there is no cooperation between railway undertakings. Two described there is some cooperation; three described cooperation is close and friendship-like. Railway undertakings cooperate on daily basis; they help each other when problems occur and rent rolling stock to each other. Partly this is due to the history and introspectiveness of railway industry: most of the people working on railway market have common history from SJ or Green Cargo. Trust and personal relationships are seen important: by combining the forces railway can compete against road transport. The situation differs in Poland. Railway undertakings mainly have some or no cooperation, railway undertakings prefer to act unaccompanied. Competition's aggressiveness describes the situation.

Reason might stand in time. Markets were liberalized in Sweden over ten years ago; Polish market followed only five, six years ago. In Sweden the market has stabilized; railway undertakings have realized in order to increase the total volume of railway transport, they need to combine forces and act as a congruent front against other transport modes. However, due to Polish market's disagreement and hostility, a lot has to happen, before Poland will get to the same level.

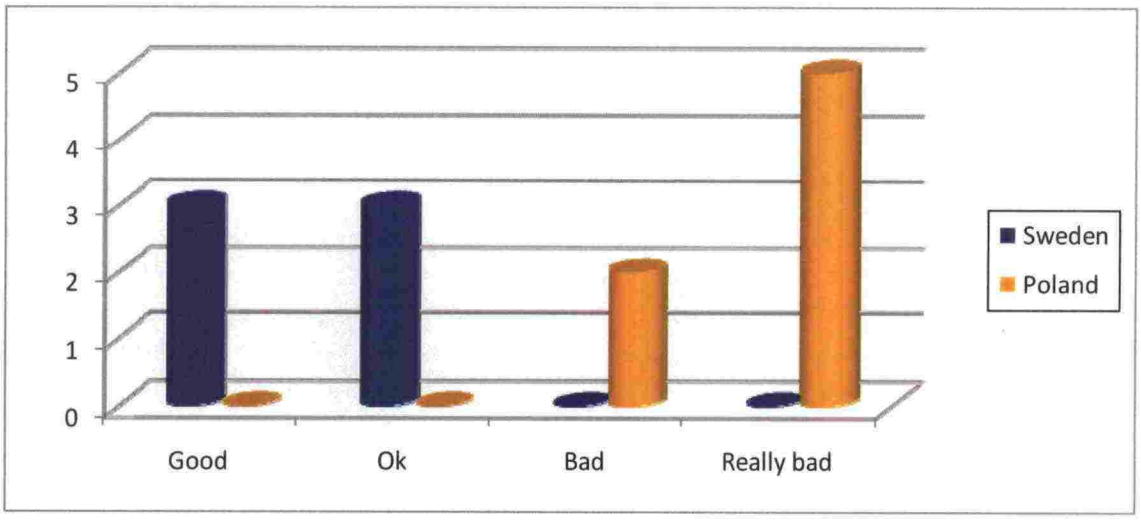

Figure 42 *Railway undertakings' opinion about the infrastructure in Sweden and Poland*

A great difference is seen in infrastructure's condition. Figure 42 presents the findings. This study supports the earlier findings and the theory. Polish interviewees noted the rail network is in bad or really bad condition. Status differs in Sweden: all railway undertakings commented rail network is either in good or OK condition. This can be explained by the length of network and available amount of money in repairing it.

7.4 The Rail Administration

The European Union legislation (Council Directive 91/440/EEC of 29 July 1991), prescribed the management of infrastructure and operations need to be separated. Therefore, PKP PLK was established in Poland and Banverket in Sweden. Infrastructure Managers' main responsibilities include network's management, constructing timetables, granting rail capacity and repairing the network. In addition, Infrastructure Managers are responsible for publishing the Network Statement. (Banverket, 2009; PKP PLK, 2009) Under these circumstances, railway undertakings need to work in close cooperation with Infrastructure Managers. Figure 43 presents the nature of cooperation.

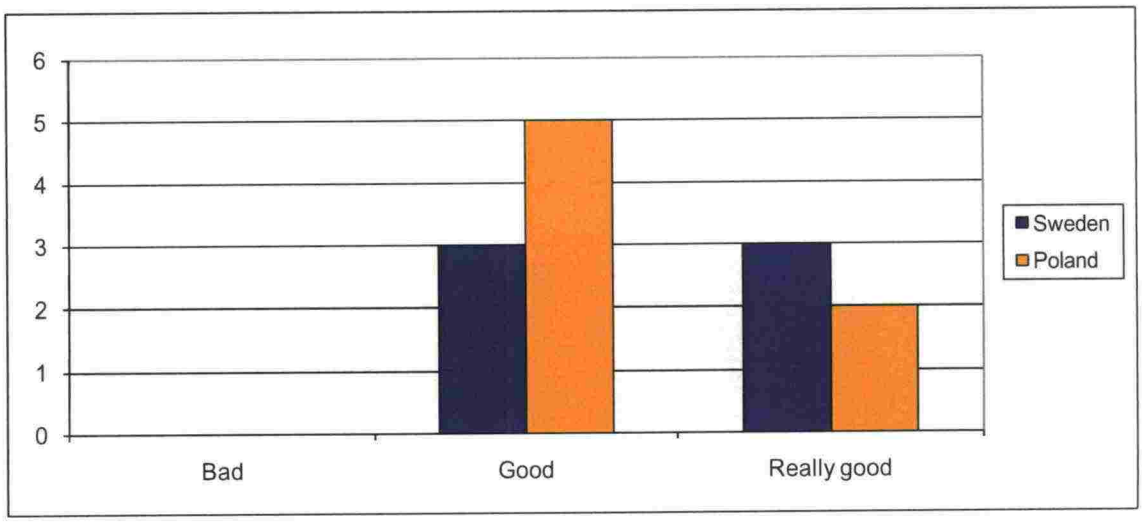

Figure 43 Railway undertakings' satisfaction level / Infrastructure Manager

As illustrated in figure 43, all railway undertakings in sampling are really satisfied with Infrastructure Managers' work. Cooperation is described good or really good. Infrastructure Managers treat all railway undertakings equally and thereby have attained railway undertakings' respect. However, one of the main publications published does not acquire as good results. Figure 44 visualizes the outcome.

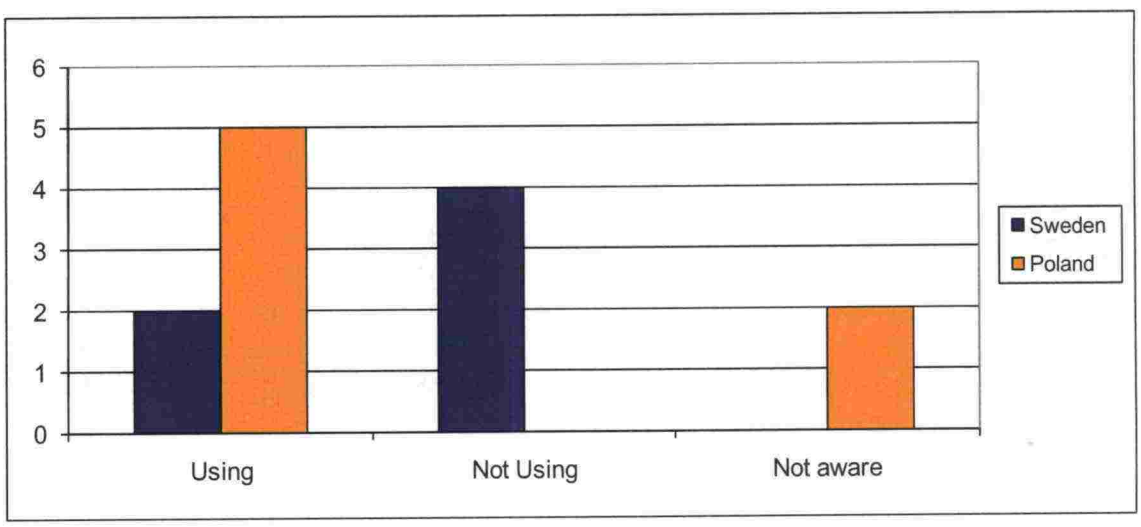

Figure 44 The Network Statement utilization

After Polish railway undertakings understood what was meant with the Network Statement, 71 per cent confirmed the publication is used. On the contrary, in Sweden 67 per cent stated they do not use the publication. According to interviewed railway undertakings, the information is too general; more tools are needed instead of words!

8 CONCLUSION

8.1 Summary and main findings

This study has provided insights into the railway freight markets' situation after the deregulation process in two countries, Sweden and Poland. The main purpose of the study was to research the main barriers to entry and market entry strategies utilized by the new entrants. In addition, research's function was to conclude recommendations for Infrastructure Manager in order to improve its service towards new potential entrants of freight market. The main barriers to entry were identified and market entry strategies used were discussed. Results were approached on country basis, followed by a comparison between countries concerned.

In accordance with the European Directive, Finland deregulated the railway freight market on 1st January 2007. Albeit the liberalization, new railway undertakings have not entered the market. However, few railway undertakings have nibbled at potential market entry. Several studies have been conducted of the Finnish railway market, pioneering authors like Järvelä and Mäkitalo. Although this study does not approach the Finnish railway market, it provides insights into two European Union railway markets, Sweden and Poland.

Study's empirical data was gathered by semi-structured theme-interviews. Research was qualitative case study analysis, concentrating on descriptive analytical approach with a tone of normative research. The qualitative method was employed because the data needed for answering the research questions were qualitative by nature. In addition, when researching novel topics, qualitative case analysis is a recommend way to gather information (Eisenhardt, 1989). Altogether 18 interviews were done, seven in Sweden, nine in Poland and two in Finland. The test-interview was organized with a possible new entrant in Finland; another Finnish company was included in order to understand the market situation. The sample gathered from case countries consisted of 14 relevant railway undertakings, two railway Infrastructure Managers and one start-up warehousing company.

Although topic is rather young field of research, it has grabbed researchers' interest world widely. However, previous literature exposed some gaps in the knowledge concerning the construct of the research. Particularly important was to compare the eastern and western European railway freight market peculiarities. Additionally, previous studies have mainly focused on second-hand data and literature analyses. Therefore first-hand data gathered via interviews can be seen as attenuating the existing empirical gap.

Various reasons affect on the market entry process. Country's national peculiarities, in connection with the types of main industries, history, working culture and location have an outstanding influence on the process. In Sweden, which presents in this study a Western European country, the main market entry strategy utilized was start-up. The Swedish National Railway undertaking noted some short-lines were unprofitable; therefore after the deregulation process, railway undertaking decided to discharge some of these lines. This enabled undertakings' old employees to establish own, new railway

undertakings. However, in Poland the situation was remarkable different. Poland, representing the Eastern European country, the novel railway undertakings were mainly utilizing the strategy of vertical integration. Poland is a producer of heavy industry products like coal and iron, which are mainly transported by railway. Since market was liberalized, many mining companies decided to establish an own transport company. Main reason might stand at European Union legislation: according to second Railway Package, only a company which main business is railway transport can operate as a railway undertaking. Therefore, this research states the mainly used market entry strategies were start-ups and vertical integration, differing between case countries. Worth mentioning is the national peculiarities', such as industrializations', proportion.

Several previous studies have concluded that market entry barriers do exist in railway market. This study confirms the argument; research results state market entry barriers do exist in Sweden and Poland. However, the results have some divergence. In Sweden the exogenous barriers, bureaucracy and acquiring rolling stock were noted as major barriers. In addition, needed investments were seen as the third largest barrier to entry. However, because respondents stated the main investments in railway market are locomotives and wagons, research suggests they should be treated as an aggregate. In Sweden concern towards availability of loading areas, finding the customer and rail capacity were noted as minor barriers to entry. Concerning the major barriers, Polish results are congruent with Swedish: although in different order, as the main barriers to entry were listed acquiring rolling stock, needed investments and bureaucracy. In this context bureaucracy associates to all needed paper work, including numerous certificates and licenses. The reason why bureaucracy is experienced as a larger barrier in Sweden might have routs in countries' location and governmental history: in Sweden, likewise in other Western European countries, people are not adjusted to certificates, stamps and long procedures. However, in Eastern Europe this is commonplace. This might explain the gradation between case countries. Like in Sweden, rolling stock was stated as the greatest investment. However, as minor barriers to entry in Poland were mentioned loading areas, terminals, rail capacity, market knowledge and competition. Therefore, we can conclude barriers to entry do exist in both case countries. Worth mentioning is their amplitude: research revealed there are several barriers and market entry is seen as a troublesome process. Therefore, according to this research the main barriers to entry confronted by the railway undertakings in Sweden and Poland are exogenous by nature: acquiring rolling stock, bureaucracy and the needed investments.

Without the railway liberalization, there would not be private railway undertakings and competition within the market. Therefore the main effect created by the liberalization is the possibility to enter the railway freight market. Research results state in both case countries demand for railway transport was higher than expected. Therefore we can conclude both markets had a need for increased number of railway undertakings. Especially in Poland several railway undertakings unfolded the customers were looking for new partners due to problems with price and customer service level. Since market liberalization enabled new railway undertakings to enter the market, actors had to improve services due to competition. Additionally, price level started to decrease. Therefore both customers and service tenders capitalized the liberalization.

According to this research, the rail networks' condition varies dramatically between case countries. Swedish railway undertakings are really satisfied with the network: repairs are conducted when necessary and Infrastructure Manager's attitude towards railway undertakings' requests is acknowledged. Because the railway undertakings are divided countrywide, only few places face congestions. The Middle and South Sweden are the main areas for railway transport, and sometimes this creates problems. In addition, railway undertakings noted the main harbors are busy during vessels' departure and arrival. Due to the fact many railway undertakings are nichers and operate in an own area, rail capacity is not seen overbooked. However, the situation is dissimilar in Poland. The rail network is in really poor condition, affecting on the average transport speed. All railway undertakings stated the concern against the rail network's condition. However, the Infrastructure Manager repairs the network annually with European Union funding. Due to increased number of passenger traffic, the generality of funds is guided to main passenger corridors. Therefore, the network used by freight traffic is lacking behind. The main railway undertakings are using the network countrywide, which sometimes causes congestions. Especially this is seen near-by big cities, like Warsaw, Krakow and Gdansk. Therefore, we can conclude there are discrepancies between case countries. Rail network's good condition and mainly congestion-free nature do boost competition in Sweden. However, in Poland the situation is vice versa: the poor condition sets extra pressures on cost-effectiveness and therefore do not boost competition.

Both intramodal and intermodal competition is noted in Swedish markets. However, intramodal competition bisects the sentiment. The reason seems to stand at the old-boy network: due to rather young age of liberalized railway freight market, employees share a common background. This affects positively on the relationship, trust and cooperation. It is outstanding how undertaking's size affects on intramodal competition: the larger railway undertaking becomes, less cooperation it has. We can conclude from the Swedish sampling generally the railway undertakings having cooperation with other railway undertakings do not face intramodal competition. Strategic groups presented in figures 23 & 32 explicate the situation. Only the market leader's coverage encompasses the whole country, while others concentrate on smaller areas. A challenger entered the markets as a late entrant, and it has gained a significant market share in rather short time. Although railway undertaking can be categorized as challenger due to its attitude towards market and the extent of its transportation, railway undertaking's customer base is rather small. However, it is aggressively enlarging its service area and tries to attract new customers by offering innovative transport services. In addition to market leader and a challenger, among sampling of six is four nichers. These railway undertakings operate in rather small area, and they are not interested in competing with other service offerers. According to this research, in order to compete against intermodal competition, railway market should act as a congruent front. Road transport was noted as the main substitute; sea transport's threat was also noted.

The Polish market faces harder intermodal and intramodal competition. All interviewed railway undertakings conceded there is intramodal competition; adjectives like hard, aggressive and tough were used. Although competition is hard and aggressive, it was noted to be positive by nature. Nevertheless, railway undertakings respect each other. This seems to be rather important factor in a country where many railway undertakings' transport cover the whole country. This was also concluded in strategic mapping.

However, it affects on railway undertakings' market positions. In addition to one market leader, Polish markets have three challengers who increase their market shares annually. These railway undertakings focus on providing better customer service with innovative transport possibilities. Among the research is one follower, who continues on the path opened by the challengers. In addition, two railway undertakings are reckon among nichers. Although they are interested in finding new business possibilities, railway undertakings are mainly focused on serving a niche market.

Although intramodal and intermodal competition is present in both case countries, it is more visual and aggressive in Poland. In Sweden, despite the lack of all railway undertakings' cooperation, railway market acts as a congruent front against intermodal competition. This feature is missing from Polish market, where railway undertakings rather work alone than as a group. This is concluded as the main problem in Polish market: railway transport will continue to decline if railway undertakings do not join forces and fight together against other transport modes. Therefore, research concludes the endogenous barrier to entry, intramodal competition, might prevent new railway undertakings to enter the railway freight market, but only in Poland. However, although intermodal competition is hard in both countries concerned, it is not seen as entry barrier.

Concluding from the results, new entrants confront various difficulties. Main barriers to entry, acquiring of rolling stock and needed investments, are industry's constant characteristics; however, changes could be done concerning the bureaucracy. According to this research, the Infrastructure Manager could assist potential railway undertakings by organizing courses, educating own personnel and by providing flexibility in various ways. According to railway undertakings, there is a focal need for a course, which would gather all information concerning market entry: starting from the first needed documents and licenses, presenting the railway sector's actors and ending up to learning how to fill in the needed applications. Therefore, the Infrastructure Manager could organize once, twice a year an intensive course introducing the basics about entering the railway freight market and operating as a railway undertaking. Additionally, interviewees stated a concern towards Infrastructure Managers' employees' know-how. Railway industry is totally own entity, which leads to the situation when entering the market from outside, employees come across numerous challenges. Although railway undertakings do understand it takes some time to adapt and learn the market peculiarities, they hope more attention would be paid to train the personnel before they start to work with railway undertakings. Additionally, railway undertakings stated a wish to increase the overall level of personnel's know-how. The flexibility and congruence should be increased. Flexibility is especially needed in rail capacity allocations: in order to compete against road transport, railway undertakings need to receive information about possible time frames earlier. Especially the problem emerged in case of ad hoc transports, where information must be received in hours, not in days. Although railway undertakings thought they all are treated equally, they still wish the congruence would be enhanced, especially in international transports. Finally, although the Network Statement is seen as a useful publication, more tools instead of words would be needed. Therefore, more informative publications are requested, instead of thick publications which provide nothing new.

Extrapolating from the research results, Infrastructure Manager could enhance its service towards new entrants by various ways. According to this research, entry process could be enhanced by organizing intensive courses giving detailed information about the procedure and needed documents. Service could be improved by strengthening the personnel's know-how. Because the Network Statement is a harmonized publication within European Union, Infrastructure Manager could consider publishing a national complement, which would tackle the mentioned deficiencies. This has been noted in Finland: the Finnish Infrastructure Manager publishes "Access Guide for Railway Undertakings".

8.2 Theoretical implications

The most significant contribution of this research was to examine how the barriers to entry and market entry strategies affect on private railway undertakings' entry process after the liberalization. In addition, the intention was to examine if the results correlate with previous findings. Although several researchers have studied the deregulated railway market (see for example Boyer, 1987; Brewer, 1996; Hilmola & Szekely, 2007; Hilmola et al., 2007; Jahanshahi, 1998; Szekely, 2009; Woodburn, 2003; Woodburn, 2007), only a little contribution has been given to comparison between Eastern and Western countries. Additionally, previous studies have mainly used second-hand data and literature analyses; therefore there was a crucial need for research using first-hand data gathered from the actor level by interviewing experts who have experienced the process, in order to either confirm or impugn the earlier results. This study attempts to tackle this gap.

Barriers to entry, based on competition theory, have found favour with researchers since 1950s, when Joe S. Bain introduced the scheme of things that potential competition may lead established companies to sacrifice present profits in order to prevent entry. Pehrsson (2009), building on insights of Shepherd (1979), has recently stated a barrier to entry can be classified as either exogenous or endogenous. According to several researchers (Brewer, 1996; Ludvigsen & Osland, 2009; Mortimer et al., 2009; Mäkitalo, 2007; Steer Davies Gleave Sweden, 2003), the main barriers to entry in railway industry are exogenous barriers: acquiring the rolling stock and bureaucracy. In addition, there are differences between countries. In UK Brewer's study (1996) concluded perceived level of infrastructure charges was also seen a barrier. In Finland (Mäkitalo, 2007) and Sweden (Steer Davies Gleave Sweden, 2003) researches estimated the difficulty of accessing the services creates a great market entry barrier. Cantos & Campos (2005) state also intermodal competition can create the market entry barriers. In addition, Mäkitalo (2007) noted attracting personnel might create a barrier. Research confirms the earlier results by perceiving the main barriers to entry in Sweden and Poland are acquiring rolling stock and bureaucracy. However, some discrepancies were found. Although infrastructure charge was seen significantly large in Poland, it was not seen as a barrier to entry. Additionally, difficulty to access services and intermodal competition were mentioned only once. Interestingly, research results state attracting employees is not a barrier. Naturally, the dominant economic situation affects on personnel's availability.

Market entry is a process including various steps. Koch (2001) presented the importance of factors which should be carefully noted before choosing the actual entry strategy.

Due to limited resources, especially small railway undertakings should pay special attention to these elements (Benito & Welch, 1994). In addition to start-ups, mainly utilized market entry strategies are vertical integration, strategic alliances and subsidiaries (Blomstermo et al., 2006; Kotler, 1988; Kotler, 2000; Lee et al., 2000). Mäkitalo (2007) found the same strategies are used also in railway market. This research confirms the cognizance.

8.3 Managerial implications

When considering entering to the railway freight market, various factors need to be concerned. Before entering, both internal and external factors should be examined. Possible entry strategies are start-up for new railway undertakings and vertical integration, subsidiaries or alliances for mature organizations. However, the entry strategy should be contemplated carefully, as strategies differ dramatically. The amount of needed capital cannot be emphasized too much: due to railway market's nature, railway undertakings need to invest remarkable amounts to rolling stock. Therefore, new entrants should consider various ways to finance the market entry. Especially the potential of venture capitalists and business angels should be concerned.

Railway freight market confronts strong barriers to entry, including both exogenous and endogenous barriers. This research confirmed the main market entry barriers are acquiring rolling stock and bureaucracy. Therefore, before entering the market railway undertaking should disentangle where the rolling stock could be acquired. According to results, the main problem is with locomotives, due to availability and needed investments. Bureaucracy has surprised many railway undertakings, therefore entrant should familiarize with the documents in early stage. Worth mentioning is the time to market: due to great number of needed documents, petition proceedings might surprise the candidates. However, the minor barriers to entry should not be elided. According to this research, rail capacity, market knowledge, competition, finding the customer and availability of loading areas are the minor market entry barriers. The barriers vary between countries; therefore national peculiarities should be perceived.

8.4 Limitations and suggestions for future research

Certain limitations should be kept in mind when interpreting the results. Firstly, this research's findings contemplate the situation in Sweden and Poland; although findings match with earlier studies, every country has own peculiarities which might affect on the end result. Due to the fact only one person was interviewed per railway undertaking and all interviewees were managers or working in such a position, this might have an effect on the results. In addition, although sampling included various types of companies (market leader, challengers and nichers) from both studied market areas, not all railway undertakings on the market were interviewed.

Secondly, this study concentrates only on railway freight market, passenger traffic market is excluded from the study. Thirdly, the study approaches the cases on market based view; resource-based view was not utilized in the research. Research's main intention was to study the railway freight market as an entity, whereas resource-based view tackles the company's key resources. Therefore resource-based view does not

examine the correct factors. Although some factors were concerned while accumulating the information, the main interest was on market-based view.

Research's reliability was confirmed by recording all the interviews. Therefore the information was available for second or third re-checks if something seemed unclear. Because the research was theme-interview where only the main themes are scripted, interviewer's way to act might have an impact on the results. However, because the main results confirmed the earlier studies based on literature analyses, we can conclude the research's reliability is good. Additionally, careful description of the analyzing process increases the reliability. Validity was examined by organizing a test-interview. Interviewee has decade's history in the field of railway transport; in addition, his employer intends to enter the Finnish railway freight market in 2010. In accordance with his proposal, few questions were added. Therefore we can state the research's validity is good.

Due to the fact research concentrated on market based view, it would be interesting to see how the results would differ if resource-based view would be utilized. Additionally, in-depth study concentrating on a certain types of railway undertakings, for example challengers in Poland, could provide interesting perspective to railway freight market.

Although research results confirm the earlier outcomes and therefore can be considered as reliable, a more extensive research on the same market areas could provide even more information. Additionally, research could include comments from various actors inside a railway undertaking: engine drivers' opinion concerning the rail network's condition could be totally different than this research's outcome.

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LAPPEENRANTA
UNIVERSITY OF TECHNOLOGY

RATAHALLINTOKESKUS
BANFÖRVALTNINGSCENTRALEN

Måndag, 12 januari 2009
Kouvola, Finland

Bästa Mottagare / Företagets namn

EN STUDIE KRING MARKNADSINTRÄDE PÅ SVENSKA/POLSKA JÄRNVÄGSMARKNADEN INOM GODSTRANSPORTSEKTORN – INSAMLING AV KUNSKAPER OCH ERFARENHETER FRÅN FINSKA STATLIGA ORGANISATIONER FÖR ATT STÖDJA PRIVATA FÖRETAG

Uppbyggnaden av den Europeiska järnvägsmarknaden förändrades den 1 januari 2007, när järnvägsmarknaderna i alla EU medlemsstater avreglerades. Vid det aktuella tillfället var det ytterst få länder som sedan tidigare avreglerat järnvägsmarknaden, Finland var ett av de länder som gjort detta och det skedde i början av år 2007.

Jag är i slutskedet av mina högskolestudier (magisterexamen i ekonomi) vid Villmanstrands tekniska universitet (Villmanstrand, Finland, www.lut.fi). Min magisteruppsats är en del av ett projekt vid den finska Banförvaltningscentralen (organisation är statliga och leasar järnvägsnätet). Projektet har för avsikt att upptäcka de främsta hindren för inträde på marknaden och marknadsinträdesstrategier i två europeiska länder, Sverige och Polen. Målet med projektet är att öka förståelsen kring processen och hur statliga organisationer kan förbättra sin service gentemot nya aktörer på marknaden. Forskningen sker genom att intervjua företagets representanter i båda dessa länder. Handledare för magisteruppsatsen är professor Olli-Pekka Hilmola från Villmanstrands tekniska universitet, Kouvola forskningscentrum och direktör Miika Mäkitalo från Finska Banförvaltningscentralen.

Sverige avreglerade järnvägsmarknaden i slutet av 90-talet och Polen i början av 2000. Numera har dessa marknader ett stort antal nya aktörer, vilka vunnit betydande marknadsandelar på godsmarknaden. Syftet med denna studie är att skapa en förståelse kring de särskilda egenskaper som är viktiga på marknaden efter att en avreglering skett. Ditt företag har en viktig roll på den Svenska/Polska järnvägsmarkanden och därför är Ditt bidrag till denna forskning mycket värdefullt. Intervjuerna är en viktig del av projektet eftersom dessa ger värdefull information om hur avregleringen påverkat järnvägsmarknaden ur ett företagsperspektiv. Ditt företags erfarenheter skulle hjälpa till att samla värdefull information.

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Intervjuerna kommer att genomföras i Sverige och Polen under februari-mars 2009. Intervjun kommer att ta en till två timmar. Jag skulle uppskatta att få din bekräftelse av intresse via e-post till adressen milla.laisi@lut.fi. Därefter kan vi boka ett möte för en intervju.

Med vänlig hälsning

BBA Milla Laisi
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LAPPEENRANTA
UNIVERSITY OF TECHNOLOGY

FINNISH RAIL
ADMINISTRATION

Friday, January 09, 2009
Kouvola, Finland

Dear Recipient / COMPANY NAME

A STUDY OF MARKET ENTRY INTO POLISH / SWEDISH RAILWAY FREIGHT MARKETS – GATHERING LEARNING POINTS FOR FINNISH GOVERNMENTAL ORGANISATIONS TO SUPPORT PRIVATE UNDERTAKINGS

The structure of European Railway market changed 1st January 2007, when the railway freight markets were opened in all of the European Union's member states. Although, few countries had liberalised the markets earlier, Finland was among the countries that faced the new situation in the beginning of year 2007.

I am in the final stages of my master's studies (Econ.) at Lappeenranta University of Technology (Lappeenranta, Finland, www.lut.fi). My master's thesis is a part of The Finnish Rail Administration's project (organization is governmental and leases railway network), which has an intention to discover the main market entry barriers and market entry strategies in two European countries, Sweden and Poland. Our aim of the project is to get better understanding from the entry process, and how governmental organization could enhance its service towards new entrants of freight market. The research is conducted by interviewing the company representatives in both of these two countries. The academic advisor is Prof., PhD Olli-Pekka Hilmola from Lappeenranta University of Technology, Kouvola Research Unit as well as Dr., Director Miika Mäkitalo from Finnish Rail Administration.

Sweden opened the railway markets in 90's and Poland early 2000. Nowadays these markets have numerous new operators, who have gained significant market shares from freight market. The objective of the study is to understand the special characteristics of entering the markets after the railway liberalisation. Your company has a strong experience in the Swedish/Polish railway markets and therefore Your contribution to this research is highly appreciated. The interview is important part of the research project as it gives valuable information how the railway liberalisation affected on the markets at actor level. Your company's experiences would help to gather genuine information.

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LAPPEENRANTA
UNIVERSITY OF TECHNOLOGY

FINNISH RAIL
ADMINISTRATION

The interviews will be conducted in Sweden and Poland during February – March 2009. The interview takes one to two hours. I would appreciate to receive Your confirmation of interest via e-mail to address milla.laisi@lut.fi. Thereafter we can arrange a meeting for an interview.

Sincerely Yours,

BBA Milla Laisi
Trainee, M.Sc. thesis researcher
Lappeenranta Univ. of Tech., Kouvola Unit
E-mail: milla.laisi@lut.fi
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Olli-Pekka Hilmola
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THE SEMI-STRUCTURED QUESTIONNAIRE

COMPANY BACKGROUND

- History
  - Any history in the transportation market, e.g. road transports, before starting railway transportations?
- Organizational chart
  - Business background before entering railway freight markets
- The knowledge concerning issues related to market entry before actually entering the markets
- When entered the markets -> related to market liberalization? (Or so called old player in some other fields)

ENTERING THE MARKETS

- Before entering the markets
  - Why to enter?
    - Customer orientation; demand for transportations from customers' side
  - What kind of preliminary preparations were made?
  - Where you gathered the information concerning the market entry?
  - Had you heard about the Network Statement?
    - If yes, did you use it
    - was it helpful
    - any information needed missing?
  - Did you have rolling stock / other needed infrastructure (warehouses, terminals)? How you organized it?
    - Where you purchased rolling stock and locomotives?
      - new / second-hand
  - Where you gathered the personnel?
    - Previous experience in railway operations
    - Qualifications
    - Training
  - Did you have collaboration with other freight operators, especially with governmentally owned companies?
- Entering the markets
  - What kind of expectations you had before entering the markets? Did the expectations come true?
  - How you entered the markets? Were certain strategies used?
  - What kind of problems or difficulties you faced when entering the markets?
    - Especially the role of governmental organizations in safety certificate and operating license + rolling stock approval + capacity allocation
  - Kindly describe the market barriers.
  - What kind of positive matters you faced when entering the markets?
  - Resources, employees' skills and certificates requested by governmental authorities
  - Did you have collaboration with other freight operators, especially with governmentally owned companies?
- The situation today
  - Kindly name the company's strengths and weaknesses

  - What are the main problems you are facing?
  - How your expenditures are divided between the investments (terminals, rolling stock, labor)
  - Has price level changed during the years?
  - Intramodal competition
  - Intermodal competition
  - Do you have collaboration with other freight operators, especially with governmentally owned companies?
  - Has cooperation with customers changed during the years?
  - Do customers require comprehensive solutions (rail transport as part of industry)
- Future
  - Do you think some improvements are needed? If yes, what kind of improvements?
  - Kindly name the company's strengths and weaknesses
  - How your expenditures are going to be divided between the investments (terminals, rolling stock, labor)
  - Future prospects; collaboration with other freight operators, especially with governmentally owned companies?

- Traction power: have you faced problems to have electricity contract for other than diesel traction locomotives (if any)?
  - Why this certain locomotive type was chosen?
- Were you aware of the special characteristics of railway freight market?
  - Surprises?
- Objectivity / transparency of the railway freight market
  - functionality of
    - ministry
    - infrastructure
    - market requisite
    - government (needed documents)

INFRASTRUCTURE

- Kindly describe the railway market in the country
- Did the market liberalization in 2007 have an influence to your business? How?
- How large rolling stock you have?
- Access charge of railway network
  - Amount; how big part from expenditures

EUROPEAN UNION

- Did EU's treaties (White Papers / Railway Packages) influence your country / business?
- Market liberalization in EU 2007; did it affect on your company?
  - Competition, enlargement plans
- What kind of problems or possibilities EU treaties / laws are creating?

Questions / Porter's five forces

1. Threat of entry
   - Barriers to entry
     i. Do you capitalize on economies of scale / substantial advantage?

   ii. Does differentiation (brand identification, service differences) play a role in your strategy?
   iii. Capital requirements
   iv. Switching costs?
   v. Access to distribution; networks
   vi. Costs disadvantages independent of scale; favorable locations, government subsidies
- Expected retaliation
   i. Competitors attitude towards new entrants
- Do you have proprietary experience → something what is not available to competitors and potential entrants through copying, hiring a competitor's employees, purchasing the latest machinery from equipment suppliers or purchasing know-how from consultants or other firms

2. Intensity of rivalry among existing competitors
   - Does the industry face price competition?
   - Do you advertise / have "advertising battles" with other companies?
   - Do you introduce new products / services in order to compete with competitors?
   - Does customer service play a big role in your business?
   - In your opinion, is industry growing quickly?
   - Fixed costs play a significant role in railway transportations. Do you agree? Why?
   - Does the industry have diverse competitors? Domestic / foreign?
   - In your opinion, does the industry have high exit barriers? (Economic, strategic, emotional factors that keep companies in business although possible negative returns)
      i. Specialized assets: highly specialized assets to a particular business or location
      ii. Fixed costs of exit: labor agreements, resettlement costs etc.
      iii. Strategic relationships
      iv. Emotional barriers: loyalty to employees, fear for one's own career
      v. Government and social restrictions: government denial or discouragement of exit out of concern for job loss and regional economic effects
   - Have you noticed shifting rivalry, e.g. due to industry maturity / technological innovation?

3. Substitutes
   - In your opinion, what is the main substitute for railway transport?
   - Any new transport innovations on the horizon?

4. Bargaining power of buyers
    - Do you think the customers have high bargaining power (forcing down prices, demanding higher quality/more services etc.)?
        i. Do the customers concentrate / purchase large volumes?
        ii. Does this present a significant fraction of customer's costs?
        iii. Are the services acquired standard?
        iv. Does exist numerous switching costs?
        v. Do the customers have full information about the market?

5. Bargaining power of suppliers
    - Is the market dominated by few companies?
    - Is the group of suppliers more concentrated than the industry it sells to?
    - Are you obliged to contend with other substitute products?
    - Does a particular industry represent a significant fraction of sales, or are your customers from various industries?

6. Government
    - In your opinion, does the government affect the position of the industry with substitutes through
        i. Regulations
        ii. Subsidies
        iii. Other means?
    - Does the government affect rivalry among competitors, e.g. by
        i. Influencing industry growth
        ii. The cost structure through regulations

FRÅGEFORMULÄR ENLIGT HALV-STRUKTURELL METODIK

FÖRETAGETS BAKGRUND

- Några erfarenheter av transportmarknaden (ex. vägtransport) innan inträdet på järnvägsgodsmarknaden
- Affärsorientering innan inträdet på järnvägsmarknaden
- Kunskapsnivå rörande marknadsinträde innan faktiskt inträde på järnvägsmarknaden
- Inträdet på järnvägsmarknaden -> relaterar till avregleringen av markanden? (eller så kallade gamla spelare i andra områden)

INTRÄDE PÅ MARKNADEN

- Innan inträdet på järnvägsmarknaden
    - Anledningar/motiv till inträdet
        - Kundorientering; Kunderna efterfrågade järnvägstransporter från
    - Vilka typer av preliminära förberedelser gjordes?
    - Var samlade ni in information kring marknadsinträde
    - Har du hört talas om järnvägsnätsbeskrivningen?
        - Om ja, har du använt den
        - Hjälpte den till i arbetet
        - Saknades någon information
    - Hade du rullande järnvägsmateriel / annan behövd infrastruktur (lager, terminaler)? Hur organiserade du det?
        - Varifrån köpte du järnvägsmateriel och lok?
            - Nya / begagnade
    - Varifrån samlade du personalen?
        - Tidigare erfarenhet med järnvägstrafik
        - Kvalifikationer
        - Utbildning
    - Har du haft samarbete med andra godstransportoperatörer, särskilt med statliga företag?

- Inträde på marknaden
    - Vilken typ av förväntningar hade du innan marknadsinträdet? Har förväntningar besannat?
    - Hur genomförde ni marknadsinträde? användes särskilda strategier?
    - Vilken typ av problem eller svårigheter stötte ni på under marknadsinträdet?
        - Speciellt statliga organisationer roll i säkerhetsintyg och drifttillstånd + järnvägsmateriel godkännande + kapacitetstilldelning
    - Vänligen beskriv marknadshindren
    - Vilken typ av positiva angelägenheter ställdes du inför vid marknadsinträdet?
    - Resurser, begärde statliga myndigheter in intyg på anställdas kompetens
    - Har du samarbetat med andra operatörer inom godstransportmarknaden, särskilt med statliga företag?

- Situationen i dag
  - Vänligen beskriv ert företags styrkor och svagheter
  - Vilka är de största problemen ni möter?
  - Hur är era utgifter uppdelade mellan investeringar (terminaler, järnvägsmateriel, arbete)
  - Har prisnivån förändrats under åren?
  - Intramodala konkurrensen
  - Intermodala konkurrensen
  - Samarbetar ni med andra operatörer inom godstransportmarknaden, särskilt med statliga företag?
  - Har samarbetet med kunderna förändrat under åren?
  - Kräver kunderna övergripande lösningar (spårbunden trafik som en del av industrin)
- Framtid
  - Tror du att vissa förbättringar är behövda?
    - Om ja, vilken typ av förbättringar?
  - Vänligen beskriv ert företags styrkor och svagheter
  - Hur kommer era utgifter vara uppdelade mellan investeringar (terminaler, järnvägsmateriel, arbete)
  - Framtidsutsikter, samarbete med andra godstransport operatörer, särskilt med statliga företag?

- Dragkraft: Har ni haft problem att få ett kontrakt för andra än diesel dragkraft lokomotiv (om någon)?
  - Varför valde ni denna typ av lok?
- Var ni medvetna om järnvägsmarknadens särdrag?
  - Överraskningar?
- Objektivitet / insyn av järnvägsgodsmarknaden
  - funktionen av
    - ministerium
    - infrastruktur
    - marknadens förutsättningar
    - regeringen (nödvändiga handlingar)

INFRASTRUKTUR

- Vänligen beskriv järnvägsmarknaden i landet
- Har avregleringen av markanden under 2007 påverkat ditt företag? Hur?
- Hur stor rullande järnvägsmateriel du har?
- Banavgiften
  - Storlek, hur stor del av utgifterna

EUROPEISKA UNIONEN

- Har EU fördrag (vitböckerna/järnvägspaketen) påverkat ditt land eller ditt företags verksamhet?
- Har marknadsavreglering inom EU under 2007, påverkade ditt företag?
  - Konkurrens, Expansionsplaner
- Vilken typ av problem eller möjligheter skapar EU fördrag och lagar?

Frågor kring Porters fem krafter

1. Etableringshot
   - Inträdeshinder
     - Brukar ni dra nytta av stordriftsfördelar/väsentliga fördelar?
     - Har differentiering (märke identifiering, service skillnader) spelat en roll i er strategi?
     - Kapitalkrav
     - Omställningskostnader?
     - Tillgång till distribution, nätverk
     - Kostnadsnackdelar oberoende av omfattning, goda platser, statliga subventioner
   - Förväntad vedergällning
     - Konkurrenters attityder gentemot nya aktörer
   - Har ni erfarenheter av äganderätten → något som inte är tillgänglig för konkurrenter och potentiella deltagare genom att kopiera, hyra en konkurrents anställda, inköp av de senaste maskinerna från leverantörer eller köpa kunskap från konsulter eller andra företag

2. Konkurrens mellan befintliga företag i branschen
   - Har industrin stött på priskonkurrens?
   - Vill du annonsera/ha reklamfejder med andra företag?
   - Vill du införa nya produkter/tjänster för att kunna konkurrera med konkurrenterna?
   - Har kundservice spelat en stor roll i ditt företag?
   - Anser du att industrin växer snabbt?
   - Fasta kostnader har spelat en betydande roll inom järnvägstransporter. Håller du med? Varför?
   - Finns det flera olika konkurrenter i branschen? Inrikes/utrikes?
   - Anser du att branschen har höga utträdeshindren? (Ekonomiska, strategiska och emotionella faktorer som hållar företag i näringslivet krav trots eventuella negativ avkastning)
     - Specialiserade tillgångar: högspecialiserade tillgångar till ett visst företag eller en plats
     - Fasta kostnader för avgången: Löntagaravtal, flyttkostnader osv.
     - Strategiska relationer
     - Emotionella hinder: lojalitet mot anställda, rädsla för en egen karriär
     - Regeringen och sociala restriktioner: regeringens förnekande eller motverka stänga av oro för arbetslöshet och regionala ekonomiska effekter
   - Har du märkt labil rivalitet, t.ex. på grund av industrin maturitet/teknisk innovation?

3. Substituten
   - Vad är det viktigaste substitutet för järnvägstransporter?
   - Några nya transportinnovationer vid horisonten?

4. Kundens förhandlingsstyrka

- Tror du att kunderna har stor förhandlingsstyrka (tvinga ner priserna, kräva högre kvalitet och flera servicen och så vidare)?
  - Är kunderna koncentrerade/köper stora volymer?
  - Är detta en större del av kundens kostnader?
  - Är tjänsterna förvärvats standard?
  - Finns många omställningskostnader?
  - Har kunderna fullständig information om marknaden?

5. Leverantörens förhandlingsstyrka
   - Är marknaden dominerad av ett fåtal företag?
   - Är gruppen leverantörer mer koncentrerad än industrin den säljer till?
   - Är du tvungen att tävla med andra substitut produkter?
   - Utgör en viss bransch en betydande del av försäljningen, eller är dina kunder från olika branscher?

6. Regeringen
   - Enligt din åsikt, påverkar regeringen ställningen för industrin med substitut genom
     - Förordningar
     - Subventioner
     - Andra sätt?
   - Har regeringen påverkat rivaliteten bland konkurrenterna, ex. genom att
     - påverka industrins tillväxt
     - kostnadsstrukturen genom förordningar

INTERVIEWEES IN SWEDEN

Gustavsson, Hans-Åke	Hector Rail
Karlsson, Stefan	Railcare
Rytting, Bo	Malmtrafik I Kiruna
Segerfelt, Anders	Green Cargo
Stenbacka, Hans	Banverket
Ström, Håkan	Tågfrakt
Wolf, Hans	Banverket
Yngström, Lars	Tågåkeriet

Interviewees in Poland & Lithuania

Checinski, Jaroslaw	PCC Rail
Hollaway, Timothy	Rail Polska
Imieninska, Jolanta	PKP PLK
Krawczynski, Lukasz	PKP Cargo
Losada, Victor Sanz	PRKiI / Comsa
Losinski, Miroslaw	Lotos Kolej
Niemiec, Krzysztof	CTL Logistics
Stepniewski, Jacek	NZTK
Verbickas, Vytautas	Mockavos Terminalas
Wrobel, Jaroslaw	PKP PLK

Interpreters

Kędzierski, Krzysztof	Lotos Kolej
Nowak, Magdalena	CTL Logistics
Taurosaite, Ilona	Mockavos Terminalas

Interviewees in Finland

Lipponen, Pertti	TR Group
Puikkonen, Petri	Proxion

SWEDEN

New entrants / freight transport

1. CargoNet AB
2. CargoNet AS
3. DSB First
4. Green Cargo AB
5. Hector Rail AB
6. Ilandsbanan AB
7. Midcargo AB
8. MTAB
9. Peterson Rail AB
10. Railcare Tåg AB
11. Railion Scandinavia A/S
12. Stena Recycling AB
13. SWT Swedtrac AB
14. TGOJ Trafik AB
15. TX Logistik AB
16. Tågfrakt AB
17. Tågåkeriet i Bergslagen AB

POLAND

New entrants / freight transport

1. CEMET S.A.
4. CTL Express Sp. z o.o.
5. CTL Logistics S.A.
6. CTL Rail Sp. z o.o.
8. CTL Train Sp. z o.o.
10. DPNIK DOLKOM Sp. z o.o.
11. Euronaft Trzebinia Sp. z o.o.
12. Freightliner PL Sp. z o.o.
13. GATX Rail Poland Sp. z o.o.
14. GreenChip Cargo Sp. z o.o.
15. Hagans Logistic Sp. z o.o.
16. „Kolej Bałtycka" S.A.
18. Kopalnia Piasku „Kotlarnia" S.A.
19. LOTOS Kolej Sp. z o.o.
20. Lubelski Węgiel „BOGDANKA" S.A.
21. Nadwiślański Zakład Transportu Kolejowego Sp. z o.o. w Bieruniu
23. ORLEN KolTrans Sp. z o.o.
24. PCC Kolchem Sp. z o.o.
25. PCC Rail COALTRAN Sp. z o.o.
26. PCC Rail S.A.
27. PCC Spedkol Sp. z o.o.
32. POL-MIEDŹ TRANS Sp. z o.o.
33. Polski Koncern Naftowy ORLEN S.A.
34. Pomorskie Przedsiębiorstwo Mechaniczno-Torowe Sp. z o.o.
35. Przedsiębiorstwo Napraw Infrastruktury Sp. z o.o.
36. Przedsiębiorstwo Robót Kolejowych i Inżynieryjnych S.A.
37. Przedsiębiorstwo Robót Komunikacyjnych w Krakowie S.A.
38. Przedsiębiorstwo Transportu Kolejowego „KOLTAR" Sp. z o.o.
39. PTK i GK S.A. w Rybniku
40. Przedsiębiorstwo Transportu Kolejowego Holding S.A.
41. Przedsiębiorstwo Usług Kolejowych KOLPREM Sp. z o.o.
42. RCO S.A.
45. STK Sp. z o.o.
47. Transoda Sp. z o.o.
48. Zakład Inżynierii Kolejowej Leśkiewicz Kosmala Sp.j.
49. X-Train Sp. z o.o.

COMPANY DETAILS SWEDEN

Company	City	Internet page
Bantåg Nordic AB	Skelleftehamn	http://www.railcare.se/?p=bantag
Malmtrafik i Kiruna AB	Kiruna	http://www.lkab.com
Tågåkeriet i Bergslagen AB	Kristinehamn	http://www.tagakeriet.se/index.html
Malmö Limhamns Järnvägs AB	Danderyd	www.cementa.se
Ofotbanen Drift AS	Narvik	http://www.ofotbanen.no/
MidCargo (BK Tåg AB)	Nässjö	http://midcargo.se/
CargoNet Sweden	Stockholm	www.cargonet.se
Falköpings Terminal AB	Falköping	
Green Cargo	Solna	http://www.greencargo.com/
Hector Rail AB (Head office)	Danderyd	http://www.hectorrail.com/
Railion Scandinavia (Head office) (DB Schenker!)	Taastrup	www.railion.dk
Skövde–Karlsborg Järnväg AB	Falköping	
TGOJ Trafik AB	Eskilstuna	http://www.tgojtrafik.se/
TX Logistik AB	Malmö	http://www.txlogistik.eu
Veolia Transport Sweden	Solna	http://www.veolia-transport.se
Tågfrakt AB	Falköping	http://www.tagfrakt.se/

COMPANY DETAILS POLAND

Company	City	Internet page
Rail Polska Sp. Z o. o.	Warsaw	www.railpolska.pl
PKP Cargo S.A.	Warsaw	http://www.pkp-cargo.pl/
PKP Linia Hutnicza Szerokotorowa	Zamosc	http://www.lhs.com.pl/
CTL Logistics	Warsaw	http://www.ctl.pl/index_en.php
Euronaft Trzebinia Sp. Z o.o.	Trzebinia	http://www.euronaft-trzebinia.pl/
Freightliner PL Spółka z o.o.	Warsaw	http://www.freightliner.co.uk/default.aspx?PageID=54
LOTOS Kolej Spólka z o.o	Gdańsk	http://www.lotos.pl/en/korporacyjny/grupa_kapitalowa/lotos_kolej
Orlen Koltrans Sp. Z o.o.	Plock	http://www.orlenkoltrans.pl/
Nadwislanski Zaklad Transportu Kolejowego Sp. Z o.o.	Wola	http://www.nztk.pl/
PCC Rail S.A.	Jaworzno	http://www.pccrail.pl/
PTKiGK S.A.	Rybnik	http://www.ptkigk.com.pl/
Pol-Miedz Trans	Lubin	http://www.pmtrans.com.pl/
Wroclaw PRKiL S.A.	Wroclaw	http://www.prkii.com.pl/
Stowarzyszenie Kolejowych Przewozów Lokalnych SKPL Kalisz	Kalisz	http://www.skpl.kalisz.pl/main.shtml
Transoda Sp. z o. o.	Ínowroclaw	
Kolej Baltycka S.A. (Baltic Rail) oraz Heavy Haul Power International and Consulting Sp. z o.o.	Szczecin	http://www.hhpi.org/
Sarkom	Olesnica	http://www.sarkom.wroc.pl/
Miniskipas	Vilnius, Lithuania	http://www.miniskipas.lt/naujienos http://www.achemosgrupe.lt/apiemus-en.html

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FINNISH RAIL
ADMINISTRATION

Publisher:
Finnish Rail Administration (RHK)
PO Box 185, Kaivokatu 8, FI-00101 Helsinki
tel. +358 (0)20 751 5111, fax +358 (0)20 751 5100
www.rhk.fi/english

ISSN 1455-2604
ISBN 978-952-445-301-1